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REVIEW AND SYNTHESIS OF RESEARCH IN BUSINESS AND OFFICE EDUCATION.

BY- LANHAM, FRANK W.   TRYTTEN, J.M.
OHIO STATE UNIV., COLUMBUS, CTR. VOC. AND TECH. ED

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THE RESEARCH REPORTED ON IS PRIMARILY RELEVANT TO BUSINESS AND OFFICE PREPARATION IN SENIOR HIGH SCHOOLS, AREA VOCATIONAL SCHOOLS, COMMUNITY COLLEGES, OR YOUTH AND ADULT PROGRAMS OPERATED BY THESE PUBLIC INSTITUTIONS. REPORTS OF TEACHER PREPARATION FOR THESE AREAS AND INSTITUTIONS ARE ALSO INCLUDED. TOPICS OUTSIDE THE SCOPE OF BUSINESS AND OFFICE EDUCATION AS DEFINED IN THE VOCATIONAL ACT OF 1963 WERE OMITTED. STUDIES WERE INCLUDED IF THEY PROVIDED (1) SOME UNIQUE OR SYSTEMATIC METHOD OF ATTACKING PROBLEMS, (2) MORE THAN A TEMPORARY OR NARROW GEOGRAPHIC RESULT, AND (3) A REPRESENTATIVE PICTURE OF THE CURRENT STATUS OF RESEARCH WHICH COULD AID RESEARCHERS TO ASSESS GAPS IN SYSTEMATIC PROBLEM SOLVING. EXCEPT FOR CLASSICS OR EARLIER RESEARCH REVIEWS, THE LITERATURE COVERED THE PERIOD FROM 1960-66. PHILOSOPHY AND OBJECTIVES, MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES, CURRICULUM DEVELOPMENT, EDUCATIONAL PROGRAMS, INSTRUCTIONAL MATERIALS AND DEVICES, LEARNING PROCESSES AND TEACHING METHODS, STUDENT PERSONNEL SERVICES, FACILITIES AND EQUIPMENT, TEACHER EDUCATION, ADMINISTRATION AND SUPERVISION, EVALUATION, AND RESEARCH ARE THE TOPICS DISCUSSED. (PS)

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Review and Synthesis of Research in

BUSINESS and OFFICE OCCUPTIONS EDUCATION

THE CENTER FOR VOCATIONAL AND
TECHNICAL EDUCATION
The Ohio State University
980 Kinnear Rd.
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The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

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REVIEW AND SYNTHESIS OF RESEARCH IN BUSINESS AND OFFICE EDUCATION

Frank W. Lanham
Associate Professor
School of Education
University of Michigan
Ann Arbor, Michigan

J. M. Trytten
Professor Emeritus
School of Education
University of Michigan
Ann Arbor, Michigan

August 1966

The Center for Research and Leadership Development in
Vocational and Technical Education
980 Kinnear Road
The Ohio State University
Columbus, Ohio

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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Business and Office Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of business and office education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings generated by funds available through Section 4(c) of PL 88-210. Admittedly, the authors had problems in securing all available material, but nevertheless, in our judgment, they have done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Agricultural Education; Distributive Education; Home Economics Education; Industrial Arts Education; Technical Education; Trade and Industrial Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Frank W. Lanham and J. M. Trytten for their scholarship and efforts in providing the profession with this new benchmark and perspective on research in business and office education. Recognition should be given to Dr. John Rowe, Chairman, Business Education Department, University of North Dakota, Grand Forks, North Dakota, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. Harry Huffman, Specialist in Business and Office Education, at The Center, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

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PREFACE

This paper is one of a series of reviews and syntheses of research in technical and vocational education. As a "state of the art" paper, it was conceived as a forerunner of the USOE Educational Research Information Center's clearinghouse in vocational education, that phase of ERIC located at The Center for Vocational and Technical Education, The Ohio State University.

With the exception of antecedent studies that could be considered either as "classics" or as bibliographical compendiums of earlier research, the review of the literature was limited to 1960 onward. The search included usual library sources, survey of key teacher educators and state supervisors, personal letters and exchanges.

Topics outside the scope of business and office education as defined in the Vocational Education Act of 1963 were omitted. Thus, research reports included are primarily those relevant to business and office preparation at the senior high school, area vocational school, community college, or youth and adult programs operated by these public institutions. Also included are reports of teacher preparation for these areas and institutions.

The interpretation of what constitutes preparatory or vocational business and office education was of necessity broad because of the breadth of state plans for business and office education operating under the provisions of the Vocational Education Act of 1963. Haines and Coleman (1966) concluded from their analysis of state plans for office education that:

> The most significant fact found here is that almost every office course in the curriculum can be deemed as vocational in almost half or more of the states with the exception of general business courses. . . .
> At the post high level, states regard most of the courses in office education as "vocational.". . .

Within the foregoing limitations, quality dimensions of research reports were arbitrarily imposed to determine the inclusion of studies. The studies herein reported provided (1) some unique or systematic manner of attacking problems not previously solved in the field, (2) more than a temporary or narrow geographic result, or (3) a representative picture of current status of the research art which in turn can aid researchers to assess the gaps in systematic solutions to our problems.

A threefold screening of potential reports was used to reduce the bulk to manageable size: (1) by title, (2) by abstract, and (3) by primary source. Such screening may have done an injustice to some reports whose value were not apparent by title or by abstracts. Time, money, and accessibility, however, imposed the screening. And, in some instances, the unavailability of "hard" copy through normal sources of supply (or even direct appeals to professional colleagues) required the report of some studies to rely on secondary sources.

In a more systematic and leisurely perusal of "hard" copy, a condition resulting from a clearinghouse of technical research, future reviewers from The Center for Vocational and Technical Education should be in a position to extract the essence of research in business and office education in a more comprehensive way.

Areas of overlap in the review do occur as among other fields of vocational preparation. Inclusion of such reports are based on their import to researchers in business and office education and thus are included to insure that the specific relationship to the area is not overlooked. Some areas of research and their resulting theories from the behavioral sciences have been mentioned as they promise fruitful avenues of future investigation in business and office education.

The team for this review of research in business and office education consisted of the co-authors and Edwin J. Weber, instructor and doctoral student, School of Education, The University of Michigan. Mrs. Edwin J. Weber was responsible for editorial and clerical assistance.

One phase of the search was a survey by mail of representatives of the National Association of Business Teacher Education, state supervisors, and teacher educators. This survey was conducted in collaboration with Dr. Warren Meyer and Roger A. Larson, University of Minnesota, a team responsible for a similar review in the area of distributive education.

Frank W. Lanham
J. M. Trytten

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PHILOSOPHY AND OBJECTIVES

In every area of education a philosophy is essential, for it must serve as the basis for all important decisions: those that have to do with objectives, curriculum, personnel, and evaluation. In business education is there a philosophy? Are there many philosophies? Is there a best philosophy? Can we through research develop a philosophy as an appropriate guide to the specific aims on which to focus in the various programs and at the several levels which we serve?

Research in the area of philosophy requires a degree of research sophistication and philosophical interest that is rare--at least among business educators. An interesting study and a valuable contribution would be an application of the technique used in Middletown by the Lynds (1937). This technique applied to business education would ignore what might be said to explain or account for actions. Rather, it would collect a host of incidents in decision-requiring situations and the resulting decision in each. Analysis of enough decisions should shed light on whether the operation is basically concerned with pupil development, "empire" building, a "factory" operation to supply custom-made manpower for local industry, or perhaps an attitude of "let's not rock the boat."

Objectives

The objectives of business programs on both the secondary and community college level have been at least part of the design in many masters' theses, many doctoral studies, and a number of conferences sponsored by governmental and other agencies. The exploratory study of major issues in the field (Hanna, 1939) highlighted the relationship of vocational and general education. Hanna's study, replicated by Hayden (1950) and later by Gratz (1960), by means of questionnaire returns, presented representative opinions on objectives and other issues for the years 1939, 1950, and 1960, respectively. The time is ripe now for a statement of the best thinking rather than the status quo or representative thinking about the aims of education for business. As Woodring (1957) said of the aims of education, when a suitable statement is made, it will not be by survey or consensus but most likely it will be by one man of experience, insight, and vision whose statement reads so convincingly that it compels acceptance.

General or Vocational Education

Hanna found that his jury of specialists held business education to be principally vocational education with minor support for its general education function. At the same time, authoritative thinking differed. The Dictionary of Education, even the 1959 edition, except for distributive education, does not recognize business and office programs in its definition of vocational education, at least at the secondary level:

> A program of education below college grade organized to prepare the learner for entrance into a particular chosen vocation or to upgrade employed workers; includes such divisions as trade and industrial education, technical education, agricultural education, distributive education, and home economics education.

The definition was dictated by provisions of federal vocational education acts which, until 1963, failed to provide funds for business and office education. Despite this lack of recognition in federal legislation, however, business teachers included themselves among vocational educators. The trend since the middle 30's has been consistently and increasingly in the direction of general education, or what may more properly be called general occupational education. The increasing availability of community college education is moving much of the vocational function to that level, although Harris (1964) emphasized that the junior college too must fuse general with vocational development.

The critical distinction between general and vocational education may be the definiteness of the target. Before a definite target is known, basic understandings, information, and skills are the proper focus with the best available tools--for instance, typewriters for communication, adding and calculating machines for competence in mathematics. The program can be more specific when the target has been set but Mead (1951) saw that the target is not easily identified:

> We are now at the point where we must educate people in what nobody knew yesterday, and prepare in our schools for what no one knows yet, but what some people must know tomorrow.

The problem of preparing pupils to meet the uncertainties of tomorrow leaves us no time to do for students things which develop talents whose purpose soon become obsolete. Russell (1962) spoke for devoting time to developing the talents that will not become obsolete: the ability to read, to write, to compute; the understanding of one's life, time, and environmental influences; and "to the extent that the school tries to develop employable skills, it should aim at transferable skills and it should not attempt to train for specific jobs that are only temporarily open."

In the selection of aims, should the criterion be the judgment of the business department, the school administration, the needs of businessmen of the community, the judgment of parents and taxpayers, or a consensus? At least, it would be helpful to have the judgment of all of the groups concerned. Downey, Seager, and Slagle (1959) devised an instrument to assay the perception of educational objectives held by various subpublics. They reached 1,286 past and present educators, 2,544 non-educators in rural, industrial, and residential communities of the west, midwest, east, south, and Canada. In all regions and all publics, top priority was given to cultivation of a "love for knowledge" and "the skills for acquiring and communicating knowledges." Both of these seem to be applicable and appropriate to business classes.

Junior High School

The role of business education in the junior high school must be, by definition of that stage, general education. Maze (1962) related the evolving thinking of business education to the currently accepted purposes of the junior high school. He concluded that the role of business classes is to support the development of the basic skills of communication and thinking. Their resources are superior tools and meaningful problem experiences in personal and consumer business situations. Unique opportunities, Maze concluded, are in exploration and guidance.

Senior High Schools

Recent research regarding objectives in secondary level business education emanates from speculation over the adequacy of the program in the writer's high school, his state, or region, i.e., Pennsylvania (Routh, 1961); New Jersey (Martin, 1962); North West Arkansas (Wheeless, 1964). The barrage of masters' and doctoral reports stipulate such purposes as "to improve weaknesses," "to evaluate the business program," "to study the need for." Frequently reference is not made to the philosophy of the school; and usually the design makes no provision for examining the appropriateness of the philosophy. When the investigator has made some reference to the philosophy, agreement with evaluative criteria of a professional organization such as the North Central Association of Secondary Schools and Colleges of the National Association for Business Teacher Education is held to have established validity. The business education philosophy needs to be examined--and re-examined--as changes occur in clientele, in social conditions, and in the business world.

Challenges of philosophy that are leveled at business education usually come from observers other than business educators. Frequently, the challenges are inherent in programs developed outside the field. Large-scale industries, for example, develop programs of their own for the education of their workers, which can give us some cues as to the needs of office and sales employees.

Russell (1962), speaking as an educational planner, challenged: "Does economic gain, good as it is, qualify as an educational goal? Should there not be a longer-range goal--and guide to the proposed education program--expressed in terms of some desired benefit to human beings in addition to the economic benefit?"

Hampton Institute's experiment with training hard-core unemployed (Brooks, 1964) is pregnant with implications for those working with the reluctant learners, the drop-outs, the hangers-back. Unemployed, unskilled adults, 200 in number, were involved. The objectives were to provide each with a skilled trade with supporting basic education, occupational information, and human relations skills. By the end of six months, 66 men were employed in their special fields, 12 in related fields, and 12 in nonrelated fields. Brooks identified the major problem (which have their counterparts in school work) among the defeated, unmotivated. The recruiter was shunned as though he might be a debt collector and the anonymity of the prospect was protected by relatives and friends until patient, persistent efforts by the recruiter dissipated the reluctance.

Community Colleges

The community college is a rapidly growing institution--most of them new enough to have recently re-examined their philosophy and role. Poland (1962) surveyed the opinions of 241 educators and members of the National Office Management Association and discussed the implications with 53 educators in Michigan community colleges. He found that the eight trends emerging from his study held few or no implications for philosophy or objectives.

The community colleges have the same question to answer that the secondary schools have had to meet, the relationship of the short-range, terminal, skill interest of the student to basic educational needs and long-range personal interest. Goddard (1962), on the basis of his search of the literature and pertinent studies of post-high school education and business education, concluded that the role of the community college calls for a comprehensive program with increasing emphasis on communicative ability, problem solving, and logical, creative thinking. He also concluded that the role would require programs for transfer and terminal vocational education as well as for general adult education.

Russell (1962) implied a long-range goal for education aimed at values other than economic gain. Swanson (1963) would add another dimension to the role of vocational education, probably a special challenge to the community college to fit into its philosophy:

> There may be a further protest associated with a basic role of vocational education. Can it be assumed that vocational education's only task is job-filling? Is there no responsibility for job-creating? What is the source of entrepreneurs? When and how does a skilled worker become a skilled employer? In sum, how does a creative and innovative role emerge as a normative aspect of vocational and technical education?

The dominating trend with regard to the philosophy of vocational education is toward the integration of vocational and general education because of the contribution of each to the other and for the sake both of the individual and of society. Balance is emphasized by Williams (1965), Venn (1964), Watson (1963), and others. After arguing for redoubled efforts and goals too dimly seen, Harris (1964) concluded: "The community junior college has both the growth potential and the educational philosophy to serve as the capstone to the occupational education structure needed in the 1970's."

Summary

Discussions of business education are in the main concerned with content, procedures, and problems which state or imply a philosophy of education, but there is little evidence that educators of the field feel a need for a critical inquiry into the appropriateness of accepted goals or aims. The implied philosophies seem to have been accepted, taken for granted, rather than on the basis of perception resulting from observation and study. One finds focus on entry skills to help youth get a foot in the door; emphasis on specific skills and standards when general occupational understandings and skills might be more appropriate; very seldom evidence of preparation for self-employment. The balance between, and the integration of, occupational and general education is a question at all levels from junior high school through community college. A philosophy is a matter of values. The need is for a philosopher and competent interpreters who can bring the philosophy to bear on the curriculum and on classroom practices.

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

The magnitude and the specifics of the twin problems of an adequate and suitable supply of manpower for business and industry and employment opportunities to assure to all people a life as well as a living have been exhaustively detailed in several comprehensive reports: Reports to the President on Manpower Requirements, Resources, Utilization, and Training (U.S. Department of Labor, 1963, 1964); and the report of the Symposium on the Impact of Automation on Education by Evans and Arnstein (1962).

The accelerating onrush of the technological avalanche has swept away skill jobs as obsolete while creating jobs calling for new skills with no lead time for workers to prepare for them. This condition of people without jobs while good jobs are unfilled is a double-faced phenomenon: it is making possible on the one hand higher standards of living through increased leisure, improved products and services: on the other hand, it is making for human misery through unemployment and withering skills no longer saleable. Technological unemployment occurs when the discovery of means of economizing the use of labor outruns the pace at which new uses for the labor can be found.

The need for manpower to keep the wheels of industry spinning calls for human hands and, even more importantly, for human intelligence and judgment. Venn (1962) saw the need to be for more people--first of all, simply for more people. Then the demand is for the right kind of people; for well-trained people; and for well-educated people. He estimated that by 1970 technical highly skilled occupations will account for more than half of all job opportunities. Estimates of the need for technicians vary from a conservative 100,000 additional per year (Federal Government estimate) to a more probable 200,000 per year additional (Emerson, 1962). The emphasis clearly must be increasingly on quality:

> In an economy which allows fewer mistakes and in which an intelligent and systematic matching of our human talents and manpower requirements becomes crucial, the best middle level manpower must be sought out and developed, be it age 21 or 51, white or Negro, male or female, rural or urban, wealthy or poor.

The education of people to enter these jobs must be concerned with their minds as well as their skills. Technical competence, important as it is, is not more so than competence in general knowledge in the realm of ideas and their application to one's chosen occupation.

The economy also demands a mobile people. Companies move and the work force moves, too. Government contracts shift from region to region, causing a shifting of workers. New inventions wipe out whole industries and other inventions start new industries in new places.

There is evidence of the need for manpower in quantities and description as stated above in the fact that large industries are conducting training programs of their own, not only induction and orientation programs but upgrading and retraining programs as well. Clark (1958) said that:

> A large number of these (large scale) concerns are committed to the proposition that education and training programs should extend from the operatives level through lower, middle, and upper management.

The demand for clerical workers in the decade of 1950-1960 increased relatively faster than for any other classification. During the present decade, employment in office occupations is expected to increase by 27 per cent, or nearly 3,000,000 new jobs (Venn, 1962). In addition 400,000 new workers are needed annually as replacements in the high turnover field. The need is not only for more workers but for people with more advanced and specialized training. Increasing use of electronic office equipment and the expansion of secretarial opportunities in scientific, engineering, medical, and other special fields will require a higher level of education and skill for many of the new entrants into the secretarial and other office occupations.

The problems related to manpower projection as an instrument of educational planning was investigated by Hollister (1965). He argued that the occupational characteristics of the labor force at any given time are determined primarily by the nature of the educational system over the previous 60 years. Since the embodiment of skill through education takes time and has a long-lasting influence on labor quality, it is important that present educational planning be consistent with expectation about the future characteristics of the labor force. Hollister's analysis isolated three types of problems: first, the effect of the composition of output on the requirements for skills; second, the question of the degree to which it is possible to substitute among skills and between skills and other inputs--the major part of the study focuses on this issue; the third is the effect of technological change on the relation between the pattern of outputs and the pattern of skill requirements.

Another part of Hollister's study was an empirical study which focused on the central problem of determining the degree of substitution among skills and other inputs. Both the theoretical and empirical analyses provided in this study indicated that present methods of manpower projection have serious shortcomings. Hollister's evidence suggested relationships more complex and subtle than existing manpower projection methods imply. Current methods also fail to consider the scope and complexity of the effects of technological change. In consequence, omitted from current projections are the interrelationships among patterns of occupational (and, therefore, educational) requirements. Omitted also are patterns of economic outputs. Determination of the degree of substitution among skills and other inputs must await methods for overcoming these shortcomings of manpower projection.

Work Opportunities

The shifting needs of industry for workers of various kinds and of different levels of competence are to the world of production an economic problem; but they are even more an educational problem in that workers must be educated, trained, and retrained to qualify for the waiting opportunities. The schools, industry, and government have all accepted roles for themselves in the educational effort.

The acts in support of occupational training, which represent the role of the government, extend from the Smith-Hughes Act of 1917, restricted in scope and appropriation and rigidly interpreted in application, to the Vocational Education Act of 1963, which in scope embraces all programs preparing workers for new positions, alternative positions, or advanced occupations. These acts together with the interim programs (like ARA and MDTA) have been reviewed in recent literature (Venn, 1964; Liles, 1964; Selden, 1966; and Wood, 1966).

A case study of trainees and nontrainees in a Midwest redevelopment area found that ARA and MDTA programs had been effective in that area since 75 per cent of the enrollees were successfully placed but that the programs reached too few of the population in need of help to be a significant answer. Devine (1964) found that the people most in need of help--the unskilled, poorly educated, older workers and the high school drop-outs--had not been significantly helped. The high cost of retraining programs restrained the unions and the educational institutions. Large corporations were best able to afford training programs for their employees and should develop more on-the-job programs. The unions could help most by liberalizing rules and contract provisions which restrict entry into jobs and apprenticeship programs.

The bleak prospects for these more needy (the unskilled, uneducated) were described by Harrington (1962) as "condemned to the economic underworld; to low paying service industries; to backward factories and businesses; to no-future, dead-end jobs. Automation could create a permanent army of poverty stricken."

In a similar study of an MDTA program in St. Louis (224 youth) Luy (1964) described the enrollees in that group. Eighty-seven per cent were school drop-outs; one-half were from homes in which parents were not living together; only 12 per cent had had previous vocational training. Luy's data are no doubt true of other groups in these programs. Johnson (1960) found two-thirds of the drop-outs from the Beaumont, Texas, high schools had failed in some subject and the majority of them had had low grades.

For high school graduates, information is available from many studies varying in depth (Cook, 1966; Jones, 1964; Brown, 1966; Cook and Lanham, 1966). These studies found that there are jobs available that can be filled by youth with not more than a high school education, with at least one skill, typewriting. Today about 60 per cent of the population is engaged in providing services, with three services that have no foreseeable limits: health, education of all kinds, and recreation and leisure (Clark, 1962). In Detroit, clerical job titles were found with as high as 98 per cent of the jobs not requiring one single skill (Cook and Lanham, 1966). Of those specifying a skill, typewriting was the desired skill in 87 per cent of the jobs.

Data collected by personal interview from 212 Detroit area companies (Cook, 1966) showed that:

> . . . Basically, a high school education is sufficient for securing employment in a data processing installation. This has been so in the past, is the pattern today, and was the

> projected pattern for the immediate future in all but two job classifications--systems analysts and supervisors. In the latter cases, approximately 40 per cent of the companies have hired and will hire persons with no more than high school training for even these two positions.

Equality of opportunity is an area in which reliable data are wanting. Cook and Lanham (1966) found in Detroit that being a Negro female was the most potent factor (.001 level of significance) associated with not obtaining an entry job. While Negro males believed that race was a discriminating factor, the proportion from the sample of Negro males who had in fact obtained entry employment was not significantly different from that of the white male sample. Race and sex, however, were significant factors in determining the nature of the entry job. Bowman (1962) collected data by interview and questionnaire from eight firms (500 to 10,000 employees) and seven groups representative of business in general bearing on the employer's image of a promotable person. She found that three-fourths of the subjects believed that race and nationality should be irrelevant but thought that, in fact, being male, under 45, white, and born on the mainland of the United States were "plus" factors. Bowman concluded that equality of opportunity in employment requires application of: (1) external discipline (law); (2) internal discipline (company policy): (3) and personal discipline (understanding and acceptance).

Nature of Preparation

The schools at every level will find it necessary to understand the influence of office changes and to adjust content and emphases to the demands of occupations, many of whose specifics will not be known until after the graduate has entered upon his job. Berry (1963) found that basic skills of general education, especially communication skills, should have priority in office training classes and that a "common sense" acquaintance level with machines, procedures, and practices would be quickly brought to a good operating level on the job. She found executives anticipating that mechanization will demand upgrading of technical qualifications for general office personnel within the next five years, while, significantly, office practice teachers say "there will be little impact from office mechanization and automation on either the content in the office practice course, or on the general or technical qualifications of future enrollees of the course."

While a prescribed training program on the high school level is not possible nor desirable, there is enough information from the many studies to guide the secondary efforts into sound courses of preparation for office positions. A course introducing students to automation might well include units on the types of automated equipment available; employment opportunities available in the field of automation; orientation to data processing and automated equipment operation (LaSalle, 1963). He added that workers in automated business offices are generally expected to possess skills in the areas of communication, problem-solving, and logical-thinking, as well as being able to get along well with others. Conclusions drawn by Jones (1964) from her study of clerical workers in first level entry jobs in digital computer installations likewise called for training that will develop flexibility, inform students of occupations that exist, and impress them with what it takes to qualify and the importance of continuing their education.

Opportunities for continuing their education should not only be stressed but students should know that industry will meet them more than half way. Carter (1965) reported that his questionnaire and interview data from 50 Denver firms with computer installations showed that beginning positions are available to both men and women in a majority of the operator and clerical classifications and that a majority of the firms with and without regular training programs automatically enroll trainees; train beginners at their regular work stations; provide individual instruction on a part-time basis; and use a variety of teaching methods such as demonstrations, manuals, actual practice, and job rotation. Clark (1958) reported that 75 per cent of all large-scale industrial concerns have programs for the educational training of their workers. It should be significant to both school curriculum makers and to students that the courses offered are not merely skill or skill-oriented courses but include a wide range of general education courses, history, English, foreign languages, arts and crafts: courses which industry values highly enough to pay for them.

Advanced Opportunities

The next step in preparing for higher level opportunities may take the student into nonpublicly-supported education programs or into one of several public-supported institutions: area vocational schools, community colleges, or the four-year degree-granting liberal arts college or university. Studies having to do with the area vocational schools are of local significance and have not contrasted the role of the area school with that of the community college.

The community college has become a strategic factor in connecting youth with employment opportunities as a result of the changed function of the business office. Sims (1963) sought to determine the growing importance of the office function in business planning, organizing, and controlling. He found major influences to be: (1) developments that have placed new and increased demands on information, such as growth of the corporate form of organization, separation of ownership and management, technology and research and development, international dimensions of management, separation of planning from performance, and increased attention to personnel problems; (2) management's need for information for effective planning, for effective control, for proper delegation, and for effective communication; (3) management research and development which includes both the traditional planning and control techniques and the newer planning and control techniques; and (4) management's changed attitude toward the use of information. The semi-professional specialties that have resulted from the influence of technology call for a level of preparation found in the community colleges. These semi-professional specialties may be office manager (Sims, 1963); middle management (Shaul, 1964); secretarial specialties (Venn, 1964); and a specialty that vocational business programs have not properly recognized--self-managed business (Mayer and Goldstein, 1961; Pickle, 1964; Lewis, 1958; Kunsemiller, 1961).

Summary

Manpower is needed. In spite of technological innovations and obsolescence of skills and jobs, there will always be need of human hands, minds, judgment, and special talents. The problem is to avoid waste of human resources, which is an extravagance to the extent that we have unemployment, underemployment, arbitrary barriers to employment, and inadequate training.

The acuteness of employment problems has accelerated and intensified a three-party attack on the education, training, retraining, and upgrading of workers: government, industry, and the schools have all accepted a role. The effort is not cooperative in that the roles of each are not coordinated with the other but progress is being made toward that end.

Opportunities for work are available at appropriate jobs for those who have a high school education or more. With less, the prospect is bleak. The opportunities appear to be unlimited in certain fields: health, education, government service, recreation and leisure related, and other service businesses. The limitations on opportunity to work are those of the individual's desire to learn, desire to earn, and his willingness to pay the price in application.

CURRICULUM DEVELOPMENT

The status of the curriculum in business education is one of uneasiness and confusion. The percentage of studies designed to investigate, improve, or evaluate the curriculum appearing in the National Business Education Quarterly testifies to the feeling that all is not well with the program with which we are working to make boys and girls economically literate and occupationally competent. That the operation of the department deserves investigation is not hard to understand: business responds overnight to promising innovative suggestions; education paces change in terms of years or generations. Changes in the curriculum are made by teachers, too many of whom find their preparation oriented to the business office, not of the present generation of students but to that of their parents (Slaten, 1965; Brown, 1961).

Studies are needed that provide imaginative and workable suggestions on how to effect changes in the curriculum and how to determine the direction the changes should take. Goodlad (1960) observed that curriculum study must consider the influences that bear on any school program: forces generated by special interest groups (taxpayers, vendors of equipment or teaching materials, et al.), forces arising out of general social conditions and technological trends and particularly the forces arising from new insights in the scholarly fields such as the nature of man as a learner, the dynamics of group action, and the school as a social agency.

Goodlad's characterization (1960) of curriculum research in general is a fair appraisal of activity in business education research as well:

> Curriculum theorizing to date is best described as abstract speculation; curriculum research, as "dust bowl" empiricism; and curriculum practice, as rule of thumb guesswork (often a wet thumb, at that, held aloft to test the direction of the prevailing breeze).

Frankel (1958), in his effort to move the curriculum orientation toward economic understanding, identified certain major strategies which curriculum effort should build into the design. Curriculum change is a concern of the business education department shared with all the other areas of the secondary schools. It must be a whole-school effort. The rapid and far-reaching changes in occupational patterns will affect the lives of all the school's population--changes that occur so rapidly that little time is available for adjustment. Some workers go jobless while some jobs go unfilled. The times place a premium on the kind of learning that enables a person to adjust to new jobs, to a new occupation which usually will require more education and training. The numbers involved make the business curriculum more than a departmental responsibility. It is estimated that 80 per cent of the high schools in the United States have programs preparing for occupations, and enroll about 1,800,000 students. The secondary schools employ more than 60,000 teachers in the field of business compared to 37,000 teachers engaged in all of the federally-aided vocational programs. Business subjects form by far the biggest program among the community colleges, and they are one of the most widely taught in the adult education programs (Venn, 1964). Evidence also indicates that a high proportion of initial jobs for youth, 16 to 21 years old, are in office and retailing Dictionary of Occupations Titles. In the Detroit sample, 54 per cent of all entry jobs were in these two areas (Cook and Lanham, 1966).

None of the many subjects and curriculums exist in isolation nor will their skills and knowledges function in isolation. Learnings should be acquired in the way they will function--a package of skills, knowledges, insights which merge in the student's perception of a task or situation. The curriculum, therefore, calls for "across-the-board" thinking in which administration, counselors, and related departments join in contriving content and situations that can best prepare youth for the world of uncertainties they are about to enter.

Curriculum Strategies

Among the strategies for curriculum adjustment, change through classroom experimentation has been the subject of several studies. Frisbie (1961), in a study of the influence of digital electronic data processing systems on the curriculum, concluded that there should be general stress in the classroom on logical thinking and mathematical thinking as well as (and even more than) the skills of specific occupational goals. These mental skills might be of "rational inquiry and empirical validation," which Russell (1962) proposed as a first priority objective in the classroom: "the harnessing, through logic and evidence of the abilities to imagine and recall, to classify and generalize, to evaluate and compare, to analyze and synthesize, to deduce and infer."

Changes that wipe out old jobs that need now obsolete skills and create instead new jobs that demand new training, challenge teachers to new ways in the classroom--to be creative and to teach for creativity. Five qualities that seem to be associated with creativity and certainly with the ability to adjust quickly to a new job are (1) originality--the ability to produce uncommon, clever, remote responses; (2) redefinition--the ability to shift attack and use objects in a new way; (3) adaptive flexibility--ability to change set to meet changing problems; (4) spontaneous flexibility--ability to change set when chances are unrestricted; and (5) sensitivity to problems--ability to recognize practical problems.

Another obvious strategy which schools at all levels use in their search for cues to better service to students is to follow the experiences of their graduates and other school leavers, although unfortunately few do so continuously and in sufficient depth. Naturally many of these follow-up studies are mainly of local value with little to interest a wider readership. While findings and interpretations of data in such reports must be accepted with caution, some findings give insights of more than local significance. Johnson (1960), for instance, interviewed 93 student drop-outs from five Beaumont high schools for the school year 1956-57 and the findings help school people to understand better the youth with whom the school has failed. These findings are: that two-thirds of them had failed in some subject and a large majority had had low grades; that there seemed to be no relationship to size of family, length of residence in the community, or to family stability; and that there was direct relationship to the educational level of the family.

West (1960) looked to the post-graduation occupational history of alumni (Southern Illinois University) to test the philosophy and content of a collegiate program of education for business. His study indicated that accountants and educators found their specific undergraduate program appropriate but that for the others the case for a specific preparatory program was not so clear. This is relevant to the principle that a job-oriented program should be flexible to the extent that the individual is committed to the occupation. Secondary occupational preparatory programs should recognize the principle.

Frankel's field study (1958) in four school systems that participated in the Cooperating Schools Project of the Joint Council on Economic Education identified certain major strategies for curriculum change. The problem was to achieve curriculum change through content that was so broadly related to living that it could serve as a thread to relate learning and thinking in one area to several others. The common interest in the study was economic understandings. Frankel concluded that necessary strategies for effecting change in the curriculum were: (1) administrative approval and involvement; (2) across-the-board planning, organization, and democratic behavior, both of these for the sake of adequate communication and team morale. The curriculum effort must be associated with recognition of need and willingness on the part of the teachers to change. Other necessary conditions are requisite funds to initiate and complete studies and a program of in-service development of teachers.

The significance of perception to learning is but slowly affecting classroom procedures where exposure and memorization seem to have undeserved acceptance. However, the role of perception may be inferred from the findings of such studies as Hicks (1949) (business vocabularies) and Madisen (1961) (economic concepts). These studies both sought to compare the understandings of students who had "taken courses" in an area with those of students who had not had the benefit of specific courses. Both studies found that understanding of concepts and vocabulary correlated significantly with intelligence and only slightly with courses studied. We can easily underappreciate the business and economic educational influence of out-of-school experiences or question too little the effectiveness of classroom exposure and methods.

Wanous (1964) argues for a curriculum (pupil program) that is a planned whole rather than an accumulation of courses. Two wielders of a trowel may be equally skillful but one thinks of himself as "laying bricks" while the other is building a cathedral. Kish (1961) implies that the same kind of purposing applies also to builders of business personalities. A definite image of the final, total product of the man or woman who "is to be" is of utmost importance when dealing with the reluctant learners, the drop-outs, the defeated. With inferior bricks, one has to think in terms of what the contemplated structure can be. Luy (1964) interviewed 224 youths enrolled in an MDTA program in St. Louis, found that one-half of the youths were from homes in which parents were not living together; 87 per cent were school drop-outs; only 12 per cent had had previous training of a vocational nature; but 67 per cent aspired to jobs of a skilled nature--in a line which was realistic for them.

The Community College

The youth who come to the community college will be not only students who are ready and able to enter upon an advanced program of education but also many students of undistinguished scholarship, dim goals, and abilities yet to be discovered. There will be some youth to whom the community college looms up as just two more years of school to occupy their time until somehow the naive hope of a job is realized. The community college inherits the curriculum challenge which for a long time has been a problem of the secondary school--still unsolved. The challenge is a guidance matter first, rather than a curriculum matter. The youth is mature enough now to have purpose, to know that he should have a purpose, and to commit himself to a purpose, even though tentative, that will give direction to his program. The purpose will then guide him into a curriculum leading to continuation into a four-year program, or a "career" program, both of which can be as specific as the student's commitment permits.

The role of the area school as compared with the community college is an issue. Erwin (1963) explored the need for an area school in Illinois but his needs and conclusions for an area school were not contrasted with the community college. They seem to apply to either equally well. Harris (1964) in his study for the American Association of Junior Colleges makes a convincing case for the community college to serve as the area vocational school.

The incidence of drop-outs from the four-year school of business tends to question the suitability of the four-year school as an answer to the desire for business education beyond high school. Kidwell (1959) followed two complete freshman classes at the University of Arizona. Almost two-thirds (62.5 per cent) dropped out before graduation, 83 per cent of these before the end of the second year. Delayed specialization, inadequate and inappropriate counseling service, and impersonal teaching techniques were causes of dissatisfaction that could have been less true of a community college.

The role of the community college is to businessmen pretty much in concept, as is the secondary business program, based on clerical skills in the office as of now, with usually no attempt to anticipate the competencies of tomorrow. Farley's (1961) findings would in all probability stand up under repeated investigations. His questionnaire and interview study classified 27 per cent of the office employees as semiprofessional: supervisory, accounting, statistical, and more responsible clerical positions. There needs to be focus still on skills: calculators, typewriting, letter composition, report writing, preparation of statistics, but sharper focus and more emphasis on the competencies for higher level responsibilities.

Summary

The business curriculum of the typical high school is an aggregate of courses rather than a curriculum: it is concerned with the traditional secretarial and office skills; and by and large has little appeal for boys and for the students who are looking forward to college or other advanced learning. The influences determining the curriculum have been: momentum of the traditional offerings; the more readily available instructional materials for the usual courses; the loyalty of teachers to the skill courses: and the success of the program in passing the rather easy test of entry on some job for most of the graduates. Evidence is lacking, except for a few notable exceptions, of adjustment to the realities of the offices which the present students will enter.

Curriculum projects are needed which employ all of the strategies of change stipulated by Frankel (1958): administrative approval and involvement; democratic planning, organization, and behavior; recognition of need and willingness to change: in-service education programs for teachers: use of appropriate consultants: funds made available to initiate and complete studies. Curriculum improvement must be an across-the-board activity with free communication among all who have an interest in the school.

Gaps

The evidence from the employing public indicates that the teaching of the conventional office skills is meeting office needs reasonably well. Much more serious is the need of teachers for an appreciation of the newer (or newly-recognized) skills--logic, imaginative thinking, communication--and how they can be exercised in the classroom; and the need for an understanding of how the modern office handles the familiar functions of information control: collection, storage, retrieval, and use.

The curriculum must not be just the sum of a number of parts. It should be so operated that the perception of the teacher of his job will not be that of the assembly line worker identifying his contribution with an isolated operation but rather one that identifies him with the ultimate product in the preparation of which he feels that he had a part.

EDUCATIONAL PROGRAMS

The business program in today's secondary school probably should not be called a vocational program, implying that it consists of related courses in sequence planned to prepare for a definite occupation. The offerings of the typical business department will be a number of individual courses, skill oriented, in which sequence and integration to the extent they exist are fashioned according to the studied judgment of a present or former decision maker in the department rather than on a research base.

If we can think of them as programs, we may expect to find a strongly entrenched secretarial program, an office employment program with or without on-the-job experience, and less often a distributive education program. More recent and as yet rare programs are management and data processing, offered as office training on a level aiming enough higher than the conventional office program to qualify them as separate tracks.

Insofar as research is available into these programs, most often it is found to be dealing with content or teaching method of individual courses (bookkeeping, shorthand, basic business) and will be discussed in the part of the report dealing with instructional methods.

Typewriting

Typewriting may be treated as a program in itself--a tool useful in any occupation and fast becoming a recognized general education tool at levels from kindergarten to college and graduate school. Much of the research comes from psychologists who saw in typewriting a fruitful and strategic area in which to study how skills are developed. Book (1925), Wood and Freeman (1932), Dvorak (1936. O'Rourke (1934) sought to determine realistic standards for the stenographic skills. He measured the proficiency of all the office employees in 10 of the largest companies in the United States, assuming that the proficiency of the workers in a situation may be taken as a defensible target for schools that are training workers for that situation. Crawford's (1956) experimental study of production-type activities in the vocational typewriting class would shift instruction to a production emphasis. The discussion of typewriting history, theory, and issues in his introductory chapters is comprehensive and expertly interpreted. More recently (1959), three centers[1] replicated the study of Wood and Freeman, in part, to test the influence of the typewriter in the elementary school as an educational tool, with grants from the Royal McBee Corporation of Port Chester, New York.

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[1] Boston University School of Education, Teachers College of Columbia University and the College of Education of the University of Illinois.

Office Occupations

From the studies of Nichols (1927), many reports relating to office occupations have been concerned with entry opportunities and requirements for office jobs which might be open to high school graduates. Nichols was prophetic about the lag in educational change to match changing entry opportunities and requirements for office jobs when he said:

> Office procedure has undergone great changes since business courses were first offered, and yet these courses, which are supposed to train for the performance of office duties, have undergone little change as far as the great majority of secondary-school commercial pupils are concerned. (Nichols, 1927, p. 20.)

Potter's research (1944) in analyzing the tasks of general clerical workers stands out as one of the influential studies that effected some curriculum changes recommended by Nichols. Many of the other studies that purported to define changing office occupations have not been so impressive. Review of most of these latter flood of studies takes one through reports characterized by hasty and naive designs, untested subjective opinion and faulty communication because of inexpertly-prepared questionnaire interview instruments.

Fortunately, more dependable information is becoming available as research funds are obtainable, federal and state, and from various foundations and industries. Much needed data, for instance, is now at hand relating to high school programs in office occupations and the jobs for which they are preparing workers. The Des Moines Public Schools developed a data processing program in cooperation with the IBM experts of the Des Moines office, reported by Wood and Scannell (1961). The objectives of the program were (1) to prepare students for various EDP applications: keypunch operators, machine operators, computer programers, and technical personnel; (2) to utilize the equipment for school records; (3) to meet the national need for qualified personnel: business and scientific applications--and national defense, for EDP equipment is definitely a "war weapon." The program involved training at the high school level, two years post-high school, and adult upgrading (the adult instruction for both retraining and initial training).

The needs and opportunities for high school programs in the Detroit Standard Metropolitan Area have been recently reported and both information and techniques apply to other metropolitan areas. Companion studies were conducted by Cook (1964) and Brown (1965) in the Detroit Standard Metropolitan Area in 1964-65 to ascertain the need for in-school training programs through a survey of current employment in data processing installations.

The two studies were identical except for interviewers used: amateurs (business teachers) in Brown's and professionals in Cook's. (Data collected by amateurs were as reliable as those collected by professionals is a finding of the combined report.) Basically, the combined reports concluded: A high school education is sufficient for securing employment in a data processing installation.

Data are also available from the Detroit area on what happens to school leavers after high school. Cook and Lanham (1966) reported a study of opportunities and requirements for initial employment of school leavers based on an interview sampling technique of the employment history of 7,752 Detroit high school leavers (Class of 1963: 7,422 graduates and 330 senior-year drop-outs, and 35,901 businesses to which they went for employment).

Included in the findings are these: Four per cent of the companies of 100 or more employees account for 55 per cent of all office and retail entry jobs. Only 19 per cent of the companies sampled employed inexperienced workers; only 10 per cent hired inexperienced office or retail workers. Incompetence and inability to do the job were the most frequent reasons given by employers for dismissing workers.

Preparation for first-entry positions has been the focus of several other studies. Jones (1964) found in her study of 69 computer installations that 27 first-level occupations were open to high school graduates and that larger installations and larger organizations offered the high school graduate the better chance for employment. She recommended:

> Because of the characteristics of the rapidly developing computer technology, the type of education or training program needed in the high school is one that will provide the student with flexibility; emphasize to him the need for continuing education because of changes in technology; and inform him of the occupations which exist, the background of education and work experience he will need, and the agencies which will provide him with the appropriate education and training.

Deihl (1964), in a similar study of supervisors at the first-entry level, found opportunities for high school graduates but more education obviously desirable. Members of the Administrative Management Society, his source of information, were apparently reluctant to make dogmatic statements about qualifications. High school courses were not as important as communication and human relations skills.

The value of a program naturally depends upon how faithfully and adequately it is pursued and supported. Shultz (1961) presented a report of cooperative office programs in a selected group of Pennsylvania schools, from which study he found that coordinators tend to do an inadequate job because of lack of time and lack of funds. Advisory councils were also thought to be of little value in the schools studied. He concluded from his observations that the experience was good for the students in that it made for good morale and self-confidence.

In the Detroit sample of cooperative work study students of the Class of 1963 (Cook and Lanham, 1966), a significantly higher percentage (at the .02 level of confidence) of cooperative work study pupils had held entry jobs than all other graduates. Retention of jobs, however, by "co-ops" was not significantly different (at the .05 level) than all other graduates.

Advanced Level Office Programs

Researchers into the opportunities, entrance qualifications, and learning specifics associated with data processing and other technological innovations took their investigations to the community college and four-year college level, where programs more appropriate to the requirements of the automated office could be offered, specialized to a degree that could not be justified in the secondary school. Venn (1964) concluded that the increasing use of electronic office equipment and the expansion of secretarial opportunities in scientific, engineering, medical, and other special fields will require a higher level of education and skill for many of the new entrants into the secretarial and office occupations. The need is not only for more but also for more specialized programs in these occupations.

The need for continuing educational opportunities will also affect adult programs of the public schools. Drummond (1963) found that women 35 years of age or over return to the labor market and find need for refresher training or new training before applying for re-employment. She found that government and education offices and service occupations were most receptive to these more mature women. Drummond recommended to high schools and community colleges that they counsel with the girls to impress them with the importance of keeping their skills alive during their lay-off years and their contacts with offices alive.

Automation

Data processing systems and other technological developments are bulldozing their way into the world of business educators, sweeping old jobs away, replacing old skills with the need for new ones, and bringing in new equipment and new systems to understand and manage. Unfortunately the new learnings are mastered only to be "tossed" aside again for newer developments. Learning how to learn has become the basic objective for students. The processing of data, its effect on employment, and the uncertainty as to the competencies and qualifications that will be needed in the scramble to qualify for the gradually upgraded positions have motivated many investigations into various aspects of the problems of adjusting education to the automated office. These studies report findings with implications for the secondary level, post-high school level, and also learning opportunities available in industry and through manufacturers of equipment.

Evidence should not be needed to show us how inappropriate for a program of preparation for the automated office is one that treats each single skill as though it were a goal in itself. Gibson (1961) described data handling as a team effort involving accountants, mathematicians, specialists in subject matter, engineers, technicians, programers, and operators, each of whom has general understanding of the whole process. He suggests a course, appropriate on the community college level, fusing business, mathematics, and engineering into a management science program.

LaSalle (1963) by questionnaire, supplemented by interviews, secured data from 102 educators, 20 producers, and 99 users of automated data processing equipment relative to the role of the secondary school in preparing students for the office of tomorrow. He found that little emphasis is apparent in high school departments on the significance of automated processes for prospective office workers, although automation is increasing at an ever accelerating pace. He concluded that business education departments should offer a one-year course, on the 12th-grade level, which should include units on types of automated equipment available, employment opportunities in the field of automation, an orientation to data processing, and automated equipment operation. Objectives appropriate are competencies in communication skills, problem solving, logical thinking, and human relations skills. Wenner (1965), too, found that few high schools are making adjustments to the needs of automated offices: only three programs were offered in the schools of Iowa, one of which was a "quickie," noncredit summer course.

Wenner found five electronic data processing positions well suited to recent high school graduates with no previous training in electronic processing: keypunch and verifier operator, tab equipment operator, auxiliary equipment operator, console operator, and equipment operator. Firms hiring persons for these positions will train them on the job or send them to schools of equipment operators. There are four data processing positions open to high school graduates only after extensive training and some experience: punch card methods analyst, programer, coder, and maintenance technician.

The functions of the office are not new, as David (1959) concluded from interviews and observation with 16 firms. Automated processing has to do with the flow of data: receiving and collecting, recording, verifying, treating (including classifying, summarizing, analyzing, interpreting, and displaying), reporting, storing, and retrieving. The student in the high school program should see these operations as a continuous flow or system.

Carter (1965), through interviews and questionnaires, made contacts with 219 companies in Denver, each of which had a data processing installation, at least 100 employees, and some form of training program for beginning workers. His purpose was to determine the opportunities available in data processing for beginning operator, technical, and clerical personnel, particularly with reference to the role of the secondary school. Carter found that a majority of the firms with beginning positions emphasize on-the-job training and selection tests for operators; selection tests, training before assignment, education beyond high school and on-the-job training for technicians; and on-the-job training for clerical workers. He found also that a majority of the companies with and without regular training programs emphasize data-processing courses for the high schools at the junior and senior levels; keypunch, sorter tabulator, and reproducer equipment; objectives of business applications, machine acquaintance, and occupational information; entrance requirements such as machine interest, tests, and inclination to detail; and company aid in the form of cooperative work experience programs, talks, field trips, and career information.

Sanders (1965) cautions against impulsive adoption of an automated system. From his study of 100 firms in four Texas cities, he found that only one-half of them had made a formal computer feasibility study with little or no systems redesign prior to the use of EDP; and the entire project was typically a part-time project of the responsible executive of less than three months duration. The finding, therefore, that almost two-thirds of the executives were disappointed with some phase of the installation is not surprising. Resistance to change was the rule among the personnel--particularly middle management and employees of two or more years of tenure.

The community college and the four-year college instructors will be interested in studies by Niemi (1959) (findings of the most popular applications, the important emphases for training programs and suggestions for course content); in McMichael's (1961) conclusions as to the impact of integrated data processing on organization structure; and specific applications such as Skousen's (1962) to bank procedures.

Management

Secondary education has strangely made little more than incidental effort to develop the qualities that one associates with the term "businessmen:" Alertness to recognize an opportunity, initiative to act on it, and confidence enough to risk money on his judgment are qualities of the "take-charge" youth who is not reached by the clerical program. The skill-oriented offerings, ignoring the challenge of "risk and reward" emphasis, has assumed, no doubt correctly, that to get a job is a more realistic purpose for a high school boy or girl than to make a job. Most of the studies in the area of management deal with preparation and opportunities on the post-high school level, which too implies that the image of the product of the high school business department is not that of a "businessman."

Evidence is plentiful, however, that high school age youth will and can respond to and successfully meet the challenges of managing an operation. The Future Farmers of America have been offering their members more of a real business training for many years than do the business departments of most high schools. The Junior Achievement movement has demonstrated both the interest and the competence of both boys and girls for involvement in management experience.

At what age can youth enter into the responsibilities of management? Many high school students already are managing a business of their own, most of them without awareness of such experience on the part of their teachers. Mayer and Goldstein (1961), in a study of "The First Two Years: Problems of Growth and Survival," reported that in their sample of 81 businesses (92 proprietors), 20 per cent had no schooling beyond the eighth grade and 75 per cent of the subjects had no more than high school education. The findings are not surprising but it would be interesting to know what they could have been if management problems had been a part of their school training. The investigators found that (1) the less the education, the higher the rate of discontinuance; (2) experience in a given line of business did not result in higher survival rate in that same line; (3) previous experience as an owner in some line did increase survival chances; (4) businesses taken over as going concerns (35 in number) showed about the same survival rate as the 46 that were started as new firms; (5) those that were more rationally motivated and had planned more extensively had a better survival rate.

Pickle (1964) analyzed the traits of managers of small businesses with implications for college programs but the qualities sought are quite appropriate for the management-minded youth in the high school: communication skills, human relations sensitivity, thinking ability, technical knowledge, and drive. Kunsemiller (1961) interviewed 102 owners of independent retail stores in 66 California cities, comparing the above-average with the below-average operators. His interest, too, was in the management of small businesses. Qualities that seemed to make a difference, he concluded, were analytic ability, discriminating thinking, problem solving, and decision making. A broad range of interests and information is better than over-specialization. Cooperative on-the-job learning is good and he recommended that cooperative programs be expanded.

The advantages of business experience under circumstances where the situations encountered can serve as the grist for the operation in the classroom were suggested by Crump (1959) after interviewing and observing 100 Negro managers, most of whom completed their formal schooling at or before high school graduation. Pertinent findings from her study were: (1) the managers had had no preparation for managerial responsibilities; (2) the managers did not appreciate the need for continuous personal development; (3) the managers did not really comprehend the nature of competition in a capitalistic society; (4) the managers did not seek competent guidance in isolating and solving their problems.

Rich (1964) wanted to find out what use was made of records in typical small businesses. He secured his information by interview and observation of managers and bookkeepers in 50 businesses in the Bloomington, Indiana, area. He drew the conclusion that in general "accounting records were basically used for historical purposes, for preparing required reports to fulfill legal requirements, usually of a tax nature, and were not fully used as a means of providing data for policy formation and managerial decisions" having to do with the long-run performance of the business and communication with owners and other interested parties.

The operator of a small business, like the executive of a large operation, needs consulting help at times but is not able to retain the services of experts in special areas. The need is real but Dobson (1962) found that managers of 31 small business firms in Florida who had used the services of management consultants were not all happy about the service. Of the 31 firms, 17 were pleased, nine were moderately satisfied, and five were unhappy. The reasons given for calling in a consultant identified the problems of the manager of a small business: (1) there is need for outside objectivity; (2) managers meet problems of types and in areas with which they are not familiar; (3) the manager is working with staff, limited in size, but also limited in breadth of experience; (4) the small business is unable to keep up with changing economic conditions.

Summary

Vocational programs typically offered in the secondary school are secretarial and cooperative office and retail programs. The secretarial elements are shorthand, typing, and, to varying extent, office machines and pre-automation information-handling procedures. Both "co-op" and secretarial programs form strong features of the community college curriculum. Typewriting is not only an integral part of the secretarial program but it is growing increasingly important as an input device in connection with the modern data handling equipment.

New and long overdue emphasis is coming to economics as a basic element of literacy for its citizenship importance and certainly for anyone entering the business world.

The most profitable area of exploration for the secondary school is what content to combine into a program for top-level students that will enable them to become knowledgeable in the field of business: why and how business operates, its problems, opportunities and responsibilities. The elements can be extracted from economics, law, accounting theory, business management, and others. Preparation for positions connected with electronic data processing installations would add to present skills those of logical thinking, quantitative thinking, accounting principles, and human relations.

The community college building on the high school foundation has before it the exciting opportunity to explore the manpower needs as they follow the influences of technological changes and to lead mature and able youth in their effort to learn what no one knows today but someone must know tomorrow.

INSTRUCTIONAL MATERIALS AND DEVICES

Because of overlapping content, some studies that could be classified as instructional materials and devices are included in other sections of this review: (1) studies related to devices or tools involving equipment have been reported in the section titled, Facilities and Equipment; i.e., reports on the use of the controlled reader, shorthand listening laboratories, and electronic data processing; (2) some studies involving materials and devices appeared to fit better under the broader topic of Learning Processes and Teaching Methods and have been inserted there.

Perhaps somewhat arbitrarily, then, the discussion of research here is limited to those relating directly to materials in the various business and office subjects plus a classification of recent demonstrations in the use of programed instruction in the area.

Shorthand Materials

Rankin's (1963) study of methods and materials in building transcribing skill from 1900-1960 provides both historical perspective and bibliography. As in other educational areas, the lag between changed methods, materials, and evaluative techniques, according to Rankin, ranges "from a few years to several decades."

Two systems of hand notation (Carter's Briefhand and Gregg Shorthand Simplified) were compared by Harper (1964). While recognizing the uncontrolled variables in his classroom demonstration, he gave the edge to briefhand as a one-semester nonvocational system requring notation at less than 70 wpm. Gregg "won" as a vocational system. The foregoing conclusions from uncontrolled experimental variables are at least equal to the uncontrolled observations that a teacher of shorthand might have made.

With more than 90 per cent of shorthand teaching in the United States now using the Gregg system, comparative studies of this type have not proved too fruitful in the past. Should a better hand notation system be proved, one suspects a low possibility of its acceptance in the United States--as low as proved disinterest in changing from the hit-and-miss placement of keys on the standard typewriter keyboard to the simplified keyboard developed by Dvorak (1936).

Technological change sponsored by private enterprise may, however, displace hand notation systems and, perhaps, typewriters or even keypunches in the future. While Bell Laboratories continues experimentation in voice-actuated computer transcripts, the experimentation of ITEX and Stenograph Corporation in using machine notetaking as computer input for translation and almost simultaneous transcript output may be nearer to realization. Successful adaptation of the computer could obsolete hand notation systems in business, keypunch, and typewriting in favor of machine notation systems as computer input. The problems of such a computer application are the same as those of computer translation of languages.

Accounting Materials

Dow (1963) compared the use of practice sets versus the use of short problems in an elementary accounting course. Using scores from an achievement test of the American Institute of Certified Public Accountants as a criterion, no statistically significant results were obtained as between experimental and control groups.

Larson (1962) applied three treatments to laboratory groups in elementary accounting: (1) "neglected" (no formal laboratory period); (2) "regular" ("traditional" laboratory period); (3) "enriched" (extensive use of visual aids, review lectures, greater attention to detail and individual instruction). "Enriched" treatment provided significantly higher scores than other treatments on criteria measures.

Higley (1962) analyzed various goals of teaching accounting and accepted the list of the Committee on Professional Education in Accounting as the "most satisfactory." He proposed the separation of students according to whether they seek public accountancy or private. He found support for (1) accounting laboratories in elementary accounting; (2) absence of support for practice sets; (3) support for internship during summers; (4) support for those directed toward public accounting to gain knowledge of applications through a "clinical method of instruction;" (5) support for transfer of some accounting to "teaching machines;" (6) business games should be developed as a tool of accounting teaching.

Business Communication and Readability

Checking readability was, in the past, a popular pastime of researchers, probably because of the ease of application of predetermined formulae such as Flesch, Gunning, or others. Some early studies applied formulae to the various textbooks in business and office education. A few dealt with the heavy technical vocabulary load expected in a one-year bookkeeping and other subject textbooks.

More recently, Peterson (1959) checked readability, using Flesch and Gunning formulae, of 300 business letters in 15 Utah companies. Peterson found no significant differences as between the "best" 20 and "poorest" 20. One can still visualize such readability measurement as an important teaching technique for pupils in communication classes (secondary, community colleges, or adult levels) to learn at firsthand notions about the components of difficulty experienced by the readers of written communication. Apparently, though, such a use of these and similar readability measures was not considered in the investigation.

Also in the area of business communication, Cleary (1962) produced a supplementary textbook-workbook to treat the special needs of the transcriber of business correspondence. Previous research, textbook analysis, and jury rating was used in developing these classroom materials.

Economic Education

Due primarily to the influence of the Joint Council on Economic Education and related state councils, economic understandings have proved popular areas of investigation with results favoring inclusion of economic content in business and office education.

With the support of the Michigan Council for Economic Education, Barron (1966) surveyed Michigan schools to determine the status of economic education (kindergarten through grade 12). With 90 per cent coverage of Michigan schools, Barron reported for grades nine through 12 that 53 per cent of the public and nonpublic schools offer an economics course, usually in the 11th or 12th grade, usually a one-semester course taught by a social studies teacher with a major in history. He reported, too, that one out of eight secondary students enroll in such a course.

Deitz (1963) used a 43-item Survey of Economic Understanding instrument to measure 3,908 secondary school seniors in 19 randomly-selected (but stratified according to size) California high schools. He found that these seniors possessed 55 per cent of the economic "concepts deemed minimal for effective citizenship" by the National Task Force on Economic Education. His recommendation that added economic instruction should be included in business courses appears by the nature of other investigations to be a popular instructional attempt.

Thus, Griffith (1962) integrated economic concepts in bookkeeping with significant differences in criterion measures as between experimental and control groups favoring the inclusion of such concepts without loss of achievement in bookkeeping.

Clayton (1962) indicated by title a bias of inclusion of economic concepts "incidentally" in beginning typewriting. Through such "incidental" economic materials used in the form of timed writing, he too found gains in economic understandings without loss of typewriting skill progress in experimental over control groups.

Programed Instruction

In the absence of computer based instruction, programed textbook materials have proved as effective as those utilizing hardware devices. Programed instruction has proved to be a popular application in several of the business subject areas during the past five years.

Taylor (1963) at Tennessee programed Lessons 1-40 of Gregg Simplified Shorthand for Colleges and Henson (1964) developed 1,535 frames for the first five chapters of instruction in the secondary level Gregg textbook. Waters (1963) prepared programed homework. Presumably, all three experimenters followed the sequential order developed by textbook authors. Testing of programs in Taylor's and Henson's studies was comparative; i.e., "traditional" or previously used methods as control versus programed experimental groups. Henson generally found that experimental group achievement according to criterion tests was significantly better. In Water's experiment, classwork and homework for 76 class periods were presented and tested in control and experimental groups by magnetic tape recordings. He found a significant difference in favor of the programed homework over the traditional homework. Henson found a saving in time as did Waters in the application of programs. Taylor did not find a significant difference in time or in achievement. Taylor's conflicting findings still lend support to the value of the tool in shorthand methodology.

Myers (1965) tested results of programed business mathematics against a traditional textbook. With "matched" experimental and control groups, he found significant differences in scores on criterion posttests of learning and a differential in time both favoring the experimental group.

Pinkerton (1963), in the area of business communication, used 15 classes with variable experimental factors (programed instruction with text, lecture-discussion combination, programed text-quiz combination, and no-regular-class-quiz combination). All the foregoing treatment groups scored significantly higher on criterion tests than classes using the program text-in-class only and regular text outside class combination. While recognizing significant differences on criterion tests in favor of programed instruction classes over control groups, Pinkerson also alluded to individual differences of instructors in their effectiveness within programed groups along. While the variables not controlled appear to be greater than those controlled, Pinkerton did attempt to wrestle with the changed role and function of the teacher in a system of learning affected by educational technology.

Payne's (1964) demonstration of programing which followed the order of eight chapters of a popular accounting textbook contributed little more than similar demonstrations in other areas of instruction--"it can be done" and additional "research and experimenting needs to be done. . . ."

In the field of programed instruction, we do not visualize a flood of new materials coming from the classroom teacher. The quality of writing must be equal to or exceed that of successful textbook writers. The ability to develop defensible goals, to determine entry behavior and ending behavior of learners, to sequentially determine through "successive approximation" the steps needed to move the learner from beginning to ending behavior are characteristics in common with textbook authors. To a degree, even reinforcement through immediate knowledge of results is included in well-written textbooks. One distinct advantage exists over the usual textbook: the pragmatic testing with potential users, revision, retesting, and revision again as a specification for programing which, if followed, promises materials whose preparation have involved pupils, the focus of all learning materials.

In the broader area of educational technology, Poland (1966) reported a 1965 survey of NABTE member schools on the use of television instruction: six schools were then televising typewriting courses;

12, accounting; three, business mathematics; two each, law and shorthand; one each, business English, management, personal finance, principles of advertising, real estate, and social studies.

Frequently, innovations such as educational television, other tools of educational technology, and other instructional materials and resources suffer from lack of adequate evaluation from the field after their introduction. Such can be charged against the decreasing interest evidenced in the last two years in reported programed instruction studies. Yet, perhaps the breakthrough in more effective learning will result not from research on any separate tool but in applications of systems of learning involving a variety of combinations of materials, tools, and human energy--a discussion of the next section.

LEARNING PROCESSES AND TEACHING METHODS

Learning processes and teaching methods in business and office education will be discussed according to the following topics: (1) investigations in areas of learning processes and teaching methods related to business and office education; (2) research contributions from business and industry; (3) substance from other disciplines; (4) informal classroom experimentation.

Except for typewriting and telegraphy, business and office education (as opposed to business and industry) has contributed little to learning theory. As described earlier, psychologists utilized the typewriter early as a base for study of skill learning (Book, 1925; Wood and Freeman, 1932; O'Rourke, 1934; Dvorak, 1936). More recently, psychologists' interest has waned in the study of typewriting skill, as such, shifting rather to the typewriter as a tool in cognitive learning by young children (Royal McBee, 1959). With experimentation now proceeding in computer-based instruction at the classroom level, the typewriter continues as input and output of systems for learning such basic skills as arithmetic and reading.

There has been a flagging interest of psychologists in the typewriter as a skill tool, an interest that should be revived. A promising method for the future could be coordinated research by those who teach skills (e.g., physical, industrial, music, and business and office educators with interdisciplinary aid of other behavioral scientists) to isolate the elements of skill learning. This isolation of elements would provide a better foundation for further study of their interrelatedness and complexity in learning.

While not an interdisciplinary approach, Johnson's (1963) typewriting experiment to determine the effectiveness of high speed drill on speed and accuracy development in beginning typewriting is in substantial agreement with the generalization of West (1961):

> . . . that substantial periods of attention to speed, followed by briefer focus on accuracy, produce better results than (a) much accuracy practice in relation to the amount of speed practice and than (b) approximately equal attention to speed and to accuracy.

Innovations in classroom size (usually increasing the number of pupils per class) and team teaching of typewriting are occurring. Systematic evaluations of results, however, have not been reported. In one study, varying patterns of time in relation to learning typewriting was tested and reported by Yuen (1959). He found that varying the number of typewriting class periods per week from two, three, four, or six and doubling the length of the 40-minute periods used in the four- and six-meeting groups did not affect significantly the outcomes from the experimental groups compared to the usual five-class-meetings-per-week control group. Anticipating a renewed emphasis on various applications of block-time programs in business and office occupations, Yuen's results should be a reminder that time per se may not be the important variable in learning. Rather, it is the utilization of time that will determine whether or not learning occurs.

Rahe compiled recent bibliographies of research in both typewriting (Rahe, 1963) and shorthand-secretarial (Rahe, 1965) fields. His writings about the implications of typewriting research are also a contribution (Rahe, 1961 and 1964).

Shifting to research in shorthand, because of the "foreign" language nature of most hand systems of rapid notation, interdisciplinary interest may be more difficult to rouse in shorthand skill research. Research on the basic elements to learn shorthand skill, thus, will continue to be the responsibility of those who know and teach such a system--designing their research on sound theoretical bases.

Approaching the meaning of sound theoretical bases are the researches of Hillestad (1960), Farmer (1961), Baggett (1964), and Uthe (1966). Each was concerned with a single element of the shorthand skill complex, the difficulty of shorthand dictation materials. Hillestad examined 16 characteristics of the Gregg shorthand system (syllables; vocabulary level; brief forms and brief form derivations; blends; "oo" and "o" sounds; dipthongs; "are-air-er" sounds; terminal "t's;" plural, past tense, and other endings; disjoined endings, word beginnings, and words beyond the first 1,500 on Silverthorn's list). She arrived at a tentative formula of difficulty. Vocabulary level and number of syllables were found by Hillestad to be the best single criterions of difficulty. She concluded that elements of the shorthand system are mainly valuable as instructional problems to be recognized. In analyzing errors, she found brief forms to be easier to write than words written by principle; error rate increases as words become longer; inconsistent forms (called "choice making" forms by Young--see below) induce more errors than consistent ones; and past tense, omitted vowels "t" following an "s" or "k" sound produce more errors.

Farmer (1961) used Hillestad's formula to determine three levels of difficulty of letters. In testing these with students using Pitman shorthand, she established two levels of difficulty as between the highly difficult and the combined medium and easy but could find no significant difference in the lower two levels. She could not conclude, therefore, that Hillestad's formula was a predictor of difficulty for transcripts made from Pitman shorthand.

Baggett (1964) used the Hillestad formula to predict six levels of letter difficulty and tested these in classes in California. He found some significant interation between classes and letter error means and schools and letter error means. While the formula could discriminate between the difficulty of the six letters, it was not effective in predicting their order of difficulty. Uthe (1966), in her yet-to-be-released dissertation, increased the analysis of difficulty from 16 to 35 characteristics to derive what is purported to be an improved formula for determining difficulty of Gregg shorthand.

Young (1964) utilized slow-motion pictures to examine the writing of "choice making words," defined as words in Pitman or Gregg shorthand that could be written in more than one way (called "inconsistent forms" by Hillestad--see above). From an "index of hesitancy" established for 40 experimental words included in dictated matter, he concluded that "choice making" was a primary element in hesitancy and thus he would eliminate choices in outline construction in shorthand systems. "Choice making" by Young and "inconsistent forms" by Hillestad as a characteristic of difficulty in shorthand is consistent with the rationale on which the recent initial teaching alphabet in learning to read and write is based.

Palmer (1964), also using slow-motion pictures and shorthand notes, examined the differences in 12 first-year shorthand students writing at 80 words a minute and 12 second-year shorthand students writing at 120 words a minute. She found significant improvement of 120-word subjects to write unfamiliar words over the first-year group. This finding was offset by the absence of any increase in accuracy of the second-year group over the first as judged from shorthand notes and completed transcripts.

Looking at shorthand achievement, Haggblade (1965) analyzed 11 factors: (1) ability to write theoretically correct outlines for high-frequency words, (2) ability to write "correct" brief forms, (3) phrasing ability, (4) quality of shorthand penmanship, (5) dictation-taking speed, (6) ability to write "correct" low-frequency words, (7) typewriting speed and (8) accuracy, (9) transcription speed and (10) accuracy, and (11) shorthand reading ability. Multiple correlation coefficient for the 11 variables was .88. Through regression analysis, factors numbers 1, 5, and 9 were found to contribute most.

In transcription, Jester (1959) used time study techniques to examine each of several activities related to transcribing letters: typewriting erasing, deciphering notes, proofreading, dealing with spelling problems, making ready, and the like. From data consisting of frequency and duration of each activity, he found that transcription production was associated more with activities other than typewriting speed.

Many of the theoretical foundations and their applications to all other business and office education subjects in such areas of behavioral science as interaction research, inquiry research, group dynamics, persuasion, social change, child growth and development, cognitive and affective learning provide fertile fields for business and office classroom application and testing--application and testing that could contribute toward the total knowledge of learning process and teacher methodology.

Dannenberg's study (1965) of a linear program titled the _Free Enterprise System_ (Lumsden, 1963) in which current programed instruction concepts of "reinforcement" are evaluated in relation to intelligence levels is of this nature. Dannenberg used three groups of subjects of differing levels of intelligence to test three variable ratios of reinforcement on learning subject content.

Most promising future contributions of business and office education research to learning and methodology will of necessity be of an applied nature. Yet, if those applications are rooted in the theoretical foundations of behavioral sciences, their contribution can improve the business and office classroom productivity as well as contribute to the broader field of learning theory.

Research Contributions from Business and Industry

One might expect that business and office educators would be in the vanguard of business and industry research that was contributed to learning process and methodology. Yet, the earlier concepts of business and office education as "skills" preparation in shorthand, typewriting, bookkeeping, and handwriting divorced the early practictioner-turned-teacher from the mainstream of business research. And the breech, as between what the business and office teacher needs to know versus what the major schools of business administration teach, has continued to place many of these teachers on the periphery of business and industry research contributions.

Thus, Taylor (1911), the Gilbreths (Frank B., 1911 and 1912, and Mrs. Lillian Maller, 1914), and others contributed "scientific management" concepts. Industrial educators, however, have been more adept in applying job analysis and other of the management techniques to classroom methodology than have the business and office educators. Advances have been made recently, of course, in the revised Dictionary of Occupational Titles (1965) in identifying and generalizing the analyses of new and changing jobs. Refining the tool of job analysis, however, to reflect more accurately both cognitive and affective requirements of changing office work (as, perhaps, all work) continues to be a promising area for future research.

These early areas of research in "scientific management" for running business and industry have long been resisted by educators as not having a place in learning process or methodology. As these earlier areas of research have merged into systems design and development research and communication science, their relevance to learning process and methodology are gradually being recognized. Especially is this true as such systems analyses have related to the totality of man, machine, materials system involved in classroom learning.

Systems of learning are being developed and tested, either in business and industry or areas of education other than office. Significantly, application of systems design and analysis has made possible the entrance of business organizations into learning and teaching enterprises: either operating large learning centers such as federally-sponsored job-corps centers or marketing learning systems to institutions of education.

A rapidly-changing education technology, the increasing numbers remaining in school longer or returning to be educated in training or retraining, and the increasing costs of educating these masses--these factors require an increased productivity in learning from all educational programs. And a systems approach, borrowed from business and industry, provides an area of research in learning process and methodology which, even if the system does not prove to result in greater productivity, can be used to at least evaluate the results obtained.

Let's move now to another research contribution from business and industry. Stemming from the 1936 debacle of the Literary Digest, survey research methodology has developed with recent improvements coming from psychologists working primarily to solve business and industry's problems.

Survey techniques, in addition to the local follow-up or community business survey, are being utilized in business and office education to determine learning process, methodology, or materials. Of varying worth, the following are representative of those in which the business community has been surveyed to help answer a teaching problem. Most could have profited through more regard to the systematic techniques of survey research.

Frazier (1962) identified problems of beginning secretaries with dictation and notes. To obtain problems, she interviewed 50 teams, each composed of a secretary and a dictator. Five categories of problems were those related to (1) office organization, (2) policies and regulations, (3) layout and physical facilities, (4) nature of dictation, and (5) personality traits.

Vezeau (1960) identified from file materials of 101 lawyers a legal technical vocabulary of 971 terms deemed "essential" in the training of legal secretaries. The extent to which successful practicing legal secretaries did, in fact, possess this vocabulary or where and how the vocabulary actually possessed was learned was not explained.

Griffin (1961) attempted to identify needs in record management curriculums through questionnaires to members of the American Records Management association and the Association of Records Executives and Administrators. To determine status of instruction, she used a questionnaire with 97 member representatives participating from American Association of Collegiate Schools of Business and check lists with 110 teachers of records management for data on curriculum status, content, organization, and equipment.

Greene (1963), while limiting his study to competencies in arithmetic needed by the junior college business graduate in

Georgia, developed a priority listing of competencies normally expected from general arithmetic or business arithmetic at much lower levels. That businessmen in Georgia (and elsewhere) desire competency in addition, subtraction, multiplication, division, percentage, "short-cuts" in division and multiplication, decimal fractions, etc., might not have required as much energy to determine as his questionnaire-by-mail type of survey did.

James (1963) used a rather cumbersome procedure of opinion gathering to find that both technical skill and personal traits are required of beginning and promotable stenographic workers. The weaknesses cited of the beginning stenographer could have been drawn from the exhortation of hundreds of businessmen speakers at educational meetings over the preceding fifty years: "poor spelling, poor grammar, poor dictation and transcription, poor typewriting, and lack of English fundamentals;" and personal weaknesses, "lack of proper grooming, lack of interest, poor selection of wearing apparel, poor diction and voice, use of too much makeup, immaturity, and lack of conscientiousness." Had the effort expended by the investigator been used to collect concrete behavioral incidents to represent these abstractions, case studies or specific teaching materials could have resulted.

Another area of research contribution emanating from business and industry is that of persuasion, represented by advertising and market research. Because of proprietary interests, however, business research of this type frequently is as the alchemist's secret that is unavailable to educators in published forms. Substance that exists comes from behavioral fields.

Persuasion in the teaching-learning process makes the topic more important as a potential field of investigation--and thus more important than the amount of substantive information coming from business and industry might first suggest.

In an analysis of theory and concepts of persuasion from the behavioral field, Brock (1963) examined these in relation to practices used in written business communications. While he concluded that most findings from behavioral research were being practiced, he identified needed research in written business communications in persuasion (e.g., ethics of persuasion, one-sided persuasive appeals, logic versus emotion, and communicator versus communicatee conclusion drawing.

Because of its relation to the total field of educational methodology and practice, then, persuasion investigation deserves a greater emphasis by educational researchers in the future.

Thus, while business and industry has contributed to learning process and methodology in the total area of education, its impact has yet to be exploited to a large extent in business and office education.

Substance from Other Disciplines

The work of B. F. Skinner (e.g., Skinner, 1953, 1957, and Ferster and Skinner, 1957), Bruner (e.g., 1966), and other behavioral scientists deserve more firsthand study by business and office educators. Yet, the quickening pace of new knowledge in all the behavioral sciences extends the lag between what is changing and available in behavioral sciences and what a business and office educator can keep up with in learning process and methodology. Thus, in the absence of firsthand knowledge, syntheses of research from related disciplines are needed to disseminate the new and important to business and office educators.

Such a synthesis is that of West's (1961) in his Implications of Research for Teaching Typewriting. While West does not purport to go beyond basic psychological principles related to process and methodology, his title might cause one to think that he does. In fact, worthwhile contributions such as West's are needed from all the other behavioral fields as their basic principles from research are brought to bear on typewriting as well as on all other business and office subjects.

In accounting, a similar attempt at synthesis has been less effective. In his integration of learning theory and accounting education, Johnson (1965) appears as an accountant in a strange country of the psychologist, a country somewhat remote to the "real live" world of the college accounting instructor. Yet, aimed at and accepted by his audience his effort could provide process and methodological innovation in the accounting classroom. Johnson's and similar syntheses, however, could be strengthened in their preparation through interdisciplinary collaboration.

Informal Classroom Research

As intimated earlier, numerous studies of local significance and limited control have found their way into the literature. Among these studies are the numerous ones of teaching--Method A - versus - Method B variety in which there has often been selection of an infinitesimal ripple of variable for experimental treatment from an ocean of available variables. Without micrometer-like measuring devices sensitive enough to measure the ripple effect, no significant relationship of the ripple-like variable to total learning is an expected result. Should significance be determined, one suspects chance, "Hawthorne effect," or other intervening variables as the reason. To the researcher seeking substance, the presence of many documents as these is an annoyance in time and energy he is often ill-prepared to spend. To say, then, that the bulk of such "informal classroom research" should be increased may appear at first to be a contradiction.

The apparent contradiction, of course, is research as substantive results (which we have attempted to synthesize to this point) versus research methodology in the classroom as learning process. As a hypothesis, the level of classroom productivity will increase as practitioners become addicts of innovation and experimentation. Even a first step in utilizing research methodology in the classroom and the resulting excitement of "trying something new" could lead to a second, third, and fourth step in moving toward including controls desired by the serious researcher. As suggested by Harold Clark (1958), classroom productivity could increase because of the Hawthorne effect (frequently uncontrolled in methodology of even the more sophisticated educational researcher--let alone the classroom practitioner who is not immersed in research design). Thus, because the teacher is thinking more, reading more, doing something different, the excitement of the teacher becomes contagious and pupils react favorably to a different, an extra-special treatment as he seeks to learn.

Many masters' degree theses reported are of the "informal classroom research" that should be encouraged. Thus, while conceptual framework, design, measurement and/or reporting are usually subject to criticism because of their lack of rigor, the learning by the researcher should be reinforced. "Straight-Copy Standards for College Typewriting" at one college is not an outcome beyond local import. Yet, a second step for Igo (1966) might well be the identification, control, and measurement of other defensible goals. Similarly, Herschelmann (1964), though recognizing her lack of variable control, was able to demonstrate that creative letter writing could be taught, not incidental to the tool of typewriting but by utilizing the tool with no apparent loss in skill acquisition.

Limitations imposed of time, money, geography, and perception may frequently cause research output at other levels to be categorized as "informal classroom research," too. Some of these have been identified elsewhere in this review. For the future, sophistication in design at levels beyond the master's degree would be a hope. Yet, this result will obtain to the extent that a greater emphasis on research and research findings are introduced at the undergraduate through the masters' and doctoral levels of study which will lead to productive postdoctoral research.

STUDENT PERSONNEL SERVICES

For purposes of this discussion, student personnel services deals with research in business and office education classified as: (1) general nature of the responsibility for and inclusion of personnel services in school programs, (2) prognostic, aptitude, or achievement devices used for guiding youth, (3) occupational information, and (4) guiding youth with a special need, e.g., the handicapped person in typewriting.

Admittedly, much of the literature in the field of guidance and counseling and education psychology includes topics of broader problems of responsibilities for guiding youth and implementing school programs involving services for maturing youth--youth preparing for and entering the labor market. Thomas (1956), in a comprehensive treatise, synthesized most of the research literature as it relates the nature of the occupational structure to educational responsibility.

Related directly to business and office education, Moriwaki's (1962) review and synthesis of research and thought narrowed guidance functions to this area. Including studies (100 in number) and periodical articles (141 in number) dating from 1926 through 1961, she classified student services according to (1) personnel, (2) cumulative records, (3) counseling activities, (4) utilization of test and evaluative instruments in guiding youth, and (5) educational and vocational guidance. According to function, she identified responsibilities of administrators (to develop the program, assign staff personnel, provide guidance for students, and maintain cumulative records and occupational information); of business teachers (counsel student in subject selection, in educational planning, in occupational choices, and in personal problems); of counselors (similar, but perhaps broader responsibilities for functions listed as those of the business teacher). From her review, Moriwaki observes that business educators (1) "have done well" in rendering educational and vocational guidance, (2) can help students make wise occupational choices, (3) should use information from tests and cumulative records to assess occupational competencies, and (4) should use an advisory (versus "dogmatic") approach in counseling.

From a review of literature and employer interview information, Anderberg (1962) identified business educators' guidance responsibilities to be (1) providing youth with occupational and requisites of preparation information needed for specific occupations, (2) administering interest and aptitude instruments, (3) keeping up-to-date through job analysis, and (4) focusing on office employment opportunities with materials. Anderberg suggested, then, that the business educator's function is that of catalyst between information and student with the aim of developing "self-guidance" within students. Implicit in this statement is the need for material for informing, testing, and preparation of students to meet present and future employment needs.

White (1965) surveyed business educators, counselors, and principals in Louisiana to examine the degree of understanding and cooperation that exists between departments of business education and of guidance and counseling. He proposed that business education departments be involved in research for determining vocational training and skill levels required for entry job placement, that guidance departments help in determining business department course offerings, and that guidance and business education jointly implement placement and follow-up studies.

Studies Related to Prognostic Devices and Testing

It is probably safe to say that we do not have any single devices for predicting success in business subjects either in the skill area (typewriting, shorthand, office machines) or in the general knowledge area. Some attempts have been made to establish such prognostic devices which could become welcome tools in guiding and counseling youth.

In a document of historical significance, Tschider (1960) reported on shorthand prognosis from 1914 to 1960. Similar historical studies of prognosis in other business and office education areas would avoid duplication of failures in previous attempts at prognosis.

Allyn (1960) attempted to develop a shorthand aptitude test using recognized shorthand strokes in its construction; subtests showed slight to negligible relationship with achievement criteria.

Lang (1960) investigated aptitude for modern foreign language, vocabulary, linguistic ability, and general scholastic aptitude in relation to dictation and transcription achievement. She found the variance too great for any of the aptitudes tested to serve as a single predictor at the beginning level of transcription achievement.

In the field of recordkeeping, bookkeeping, and accounting, Byrnside (1961) attempted to determine the validity of an aptitude test of 78 items for recordkeeping and bookkeeping. Twenty-one schools and 1,163 students were involved. His findings indicated a significant degree of validity, particularly for the high achiever. His study should be replicated.

Allen (1961) found in his study of 170 freshmen secretarial students (1959) and later (1960-61) a study of 181 students that high school grades are the best single predictor of success for secretarial majors at the Women's College of the University of North Carolina.

Anderson (1961) found in her study of the effectiveness of high school bookkeeping and shorthand rates as indicators of college success (which also included indices involving English and social studies) that no one of the high school indices examined could be considered effective as a single, comprehensive indicator of college achievement.

It seems reasonable to conclude that no single device has been developed which predicts success or failure in any business or office subject with any degree of reliability. It also seems likely that the limited-resource attempts which have been made in the past will not produce the kind of instrument needed in student personnel services.

Occupational Information

The collection and dissemination of current occupational information is one area of student personnel services in which business and office education can participate effectively. Research literature in business and office education abounds in surveys and other types of reports which provide occupational information with specific job descriptions that include education and training requirements.

Occupational information appears in the research in such studies as Sears (1961) who attempted to predict the roles of the stenographer and secretary in the future business office; predicting a change to administrative capacity not requiring typical stenographic skills in her study of the effects of automation in stenographic and secretarial positions--a 1961 forecast. During the intervening five years--1961 to 1966--her predicted trend is more clearly discernible. Graves (1961) reported on job specifications for clerical and stenographic positions available to recent high school graduates.

In more specialized occupations, Shankel (1960) reported through the normative survey of the preparation and training of 69 active Certified Shorthand Reporters in the state of Kansas. Reese (1960) analyzed the professional status of the official circuit court reporters in the 20 judicial districts of Illinois specifically to gather information which could be used as a guide for the secondary school student in the selection of a career. Griffin (1961) reported on education needed for administrators of records management programs as a result of a survey of duties and responsibilities of records management personnel.

Casey (1961), in a follow-up study of the medical assistants who graduated from the New York City Community College, provided a detailed job description and suggestions for the preparation and training of personnel.

Fried (1964) reported a sociological study of the occupation of shorthand reporter. Deihl (1964) considered the selection of first-level office supervision with implications for business education. Formal education, requisite qualities, bases for selection, and the prevalence and nature of formal in-service training programs are discussed.

An area which has been the target of much research which has produced usable and needed occupational information has been that of electronic data processing. In the 1950's, studies such as Edwards' (1959) on the effects of automation on accounting jobs began to appear. Backlund (1964) investigated the preparation, duties, and qualifications of programers in the city of Portland, Oregon. Hanke (1964) reported on the education and training of business computer programers in selected business in Northern Illinois. Jones (1964), as discussed in the section on Educational Programs and Offerings, surveyed business and industry data processing installations in Ohio to determine the knowledge and skill needed by clerical workers in first-level entry occupations in digital computer installations. And Wenner

(1965) reported on the minimum data processing employment requirements in selected Iowa businesses.

The problems involved here are not so much the collection of occupational information as reducing it to usable form and disseminating it to business teachers and counselors for their use in guiding youth toward intelligent vocational choices.

Follow-Up Studies

Follow-up studies can provide feedback which result in changes in vocational offerings more nearly attuned to existing job skill standards.

Lowry (1958) developed a guide to follow-up research in business education through the historical and normative survey. His report is valuable for its bibliography. DeRodeff (1965) sought to improve the follow-up study process in schools and recommended (1) a pattern of continuous follow-up, (2) a systematic approach in gathering data, (3) utilization of simple charts and graphs to explain data, (4) analysis of data to gain a more intensive and longitudinal study of an adequate sampling of a group of graduates, and (5) modifications of existing programs in accordance with follow-up findings.

Haines (1963 and 1965) reported on follow-ups of the 1962 and 1963 graduates of Michigan high schools who received training for distributive, office, or trade and industrial occupations. One finding of special interest to business and office educators was that 76 per cent of office trainees and 58 per cent of distributive education trainees were academically in the upper half of their class; 47 per cent of the office trainee were in the upper quarter. This finding, though distorted by questionnaire-by-mail methodology, was similar to that of the Detroit study (Cook and Lanham, 1966).

Special Problems

Two studies point to the student personnel services that business education courses can contribute in the solution of special problems. Purkhiser (1959) and Espeseth (1961) both studied the ability of cerebral palsied students to learn typewriting with positive results. Espeseth proposed a methodological approach to the teaching of the physically handicapped. Research such as this suggests vocational preparation is possible for handicapped persons. Additional research in the vocational preparation of other kinds of handicapped people is needed.

Summary

Business and office education research can make its contribution to the total student personnel services offered by a school system to its youth: an area of personal guidance and counseling, by offering up-to-date occupational information, by developing prognostic devices and reliable test instruments, by providing feedback from business and industry through follow-up procedures for program changes, and by looking for ways to make the handicapped youngster occupationally competent.

FACILITIES AND EQUIPMENT

Research in business and office education which deals specifically with facilities and equipment seems almost nonexistent except for an occasional survey.

Monograph 81 (South-Western, 1953) is based on a state-wide survey of practices in layouts and facilities for business education in California. This source is primarily of historical interest. For example, at that time there was naturally little interest on the part of business educators in EDP equipment since the first business applications of computers did not appear on the scene until 1952.

Walker (1959) developed a standard list of equipment for high school and junior college classrooms and the cost of classrooms so equipped. He estimated that classrooms requiring a large number of office machines are approximately eight to 14 times as expensive to furnish and equip as are general purpose rooms.

The EBTA Yearbook for 1963 is concerned with the problem of facilities, supplies, and aids. The treatment by authors makes this Yearbook a source of information about current practice. As one would expect from such a nonresearch source, however, basic assumptions made by the authors are not generally documented.

Selden (1964) developed Monograph 112 (South-Western), Planning the Facilities for Business Education. Again, the information is based primarily on the experience and reading of the author rather than on research evidence.

The nature and extent of the business education program determines in large measure the requirements for facilities and equipment. Yet little of the research in business and office education has dealt directly with what the facilities and equipment should be. Indirectly, however, some studies that deal with the "nature" of the program are concerned with equipment usage. By implication, then, perhaps some indication of the facilities and equipment can be deduced from these.

Prewitt (1961) reported on research findings and nonresearch periodical literature pertaining to the area of office practice instruction for the period 1951-1959. Her synthesis is based on 124 research abstracts and 287 articles of professional literature, some of which do deal with facilities and equipment.

In the area of data processing, Niemi (1959) reported that computer manufacturers were indicated as the first choice of training agency by the majority of respondents (heads of computer installations) for digital computer programing, advanced programing techniques, and digital computer operation. His survey dealt with the skills, knowledges, and understandings of EDP that colleges and universities should provide their business students. A similar conclusion was reached by Brown (1965) and Cook (1966) in the City of Detroit. However, their focus was on secondary levels of instruction.

MacDonald (1964) found that lack of equipment was one barrier to effective electronic data processing instruction at the secondary level. (Other barriers included the lack of teachers with adequate training in the subject and the lack of suitable teaching materials.)

Cook (1966), in the most recent study available, recommended that "the high schools in the Detroit Standard Metropolitan Statistical Area should be assisted through vocational education funds to acquire necessary equipment . . . to prepare graduates to enter these emerging occupations." He further recommended that "this study be replicated annually to determine . . . changes in equipment used and concomitant need for changes in the training program." A recommendation of this study which is at odds with some current policy at federal and state levels is that EDP equipment should be rented by schools to avoid obsolescence due to rapid technological change. The study includes data about equipment used and training needs of operators.

Shifting from studies related to data processing and office practice needs, some recent studies deal with equipment needs in shorthand dictation laboratories and other laboratory tools. Crandall (1960) reported no significant difference as between experimental and control groups in shorthand transcription rates on the criterion test. The control group was taught according to the Teachers Handbook which accompanied the text. Of the three experimental groups, one used a special notebook; one used only tapes with the instructor in the room at all times; and one, the instructor left the room after the 10th lesson (of 50) to return only for testing.

Concerning dictation laboratories, Phillips (1964) suggested a major omission from current research: "The greatest weakness seems to be that not enough experiments have been conducted to test the assumption that the improvement is greater because of the electronic dictation laboratories. . . ." Lensing (1961) reported no significant difference between groups using teacher dictation as opposed to taped dictation. Palmer (1963) also reported no significant difference between experimental and control groups in a similar experiment. Conflicting results, however, were reported by Coleman (1964) who found that students in the control group (taught in a "traditional" method of shorthand) performed significantly better than did the students in the experimental group utilizing tape-laboratory instruction. He called for further research to determine the most efficient methods of use for tape or recorded types of presentations.

The use of the controlled reader in typewriting instruction has produced similarly conflicting results. Kline (1961) reported a significant difference at the .01 level in speed and accuracy in favor of the experimental group over the control group. On the other hand, Perkins (1963) reported no significant difference in speed and accuracy in typewriting through the use of the controlled reader. And Johnson (1962) found that "in beginning typewriting classes at the college level, the Skill-Builder Controlled Reader may not be expected to be particularly helpful. In intermediate classes those utilizing the Skill-Builder Controlled Reader may be expected to perform significantly better than those not using the instrument." With such conflicting evidence, the value of this tool in the typewriting laboratory remains to be proved.

In the only report found dealing with the use of the controlled reader in shorthand instruction, Nisdorf (1962) reported significant results in transcription through its use. The experimental class improved 100 per cent in median score of words compared with a 32 per cent increase in the control group. On both three-minute and five-minute dictations, the experimental class scored approximately 25 per cent higher than did the control class in the ability to take dictation of new-matter material.

In the area of educational technology, the literature is almost devoid of any substantial evidence. Team teaching, educational television, ungraded school, "Trump" plan arrangements for staff and facilities, closed circuit television, or other audio-visual resources and the like in which some schools are innovating in their business and office education areas have not resulted in "hard" data, even of a normative nature of original cost of facilities and equipment, repair, or replacement--let alone comparative data with traditional facilities and equipment under these headings.

One bit of evidence dealing with library resources at the teacher education level does exist. McKitrick (1960) rated library resources in 27 Ohio teacher education institutions. Library resources were rated "entirely adequate" or "adequate" in more than half of these schools in principles of and applied economics, business administration, office training, basic business, and methods. However, "business education research holdings" were noted only "partly adequate" in more than half of the libraries.

Obvious research gaps exist in the area of facilities and equipment in business and office education. One would hope that, even on a normative basis, data involving practices related to drawing educational specifications, facility and equipment specifications, procurement on both a capital outlay and replacement basis, and repair and maintenance practices would soon be made available. With such normative data available, a variety of problems related to the marketplace (e.g., group buying, off-season buying, comparative practices of contracting or in-school repair, depreciation rates in relation to use and to kind of machine) could begin to be solved on a basis extended beyond the experience or bias of local administrators.

TEACHER EDUCATION

Research With General Program Implications

The quality of any business education program is determined in large measure by the quality of the business teacher and, therefore, to some extent, by the quality of teacher education programs. On a nonresearch basis, many would agree with Wanous (1966) who wrote:

> There is a widespread consensus that business teachers should spend five years in collegiate preparation for a teaching career. This preparation should consist of the following five parts:
> A broad background in the arts and sciences.
> A comprehensive knowledge of the fields of business and economics including, of course, those subjects in these fields that are to be taught.
> An understanding of learner behavior and the learning process.
> A knowledge of the curricular materials that are available in the subject specialty of the teacher, and further, an understanding of the approaches that may be used to evaluate these materials.
> Skill in managing a classroom, organizing learning activities, working with students, and supervising the learning process.

While few would disagree with Wanous' ideal, little evidence is available that proves the efficacy of five-year preparation over four years or, for that matter, the proportion of each of the five major items of preparation if, indeed, each is a necessity that should be provided.

Another source of information on the preparation of business teachers will be available with the publication of the Guidelines for the Preparation of Office Occupations Teachers developed by Cook (1966) and others through a USOE-funded project. By design, the project must be described as "action" research. The value of the guidelines rests on the spread of authoritative opinion throughout the United States on what teacher education should be.

Both of the foregoing authoritative sources, however, may do a disservice by discouraging future innovation and research--research in which teaching functions could be reclassified into numerous professional and paraprofessional levels of performance in business and office education.

In one such attempt at classification and description, Crunk (1959) reported on research and other professional literature related to guidance, counseling, and evaluation of students in teacher education for attainment of those qualifications (knowledges, skills, abilities, and personal qualities) important to effectiveness as a teacher, with special reference to the business teacher. Her findings include a list of qualifications desirable for an effective business teacher and a list of concepts pertaining to guiding, counseling, and progressively evaluating business teacher trainees toward attainment of these qualifications. Her voluminous (1,190 pp.) study is also an important bibliographic reference of previous research.

National Business Education Quarterly (Winter, 1962-63), Suggested Content for Professional Courses in Business Education, is illustrative of program needs in business teacher preparation as expressed by teachers in the field. This report was developed by specialists in subject matter areas to answer critics who were seeking to eliminate specialized business teacher education courses from business teacher preparation.

National Business Education Quarterly (Winter, 1963-64), The Business Teacher Education Curriculum--A Study of Subject Matter Elements, Part I, reported the results of a survey by questionnaire of 78 in number or 28 per cent of the then 278 member schools of the National Association for Business Teacher Education to determine what should be included in the teacher education program for future business teachers. Three of the seven studies were reported: curriculum planning, personnel services (guidance), and teaching methodology; secretarial and related office machines; and student teaching and other laboratory school experiences.

National Business Education Quarterly (Winter, 1964-65) continued with Part II of the NABTE study of the business teacher education curriculum with reports on business administration and economic education; bookkeeping, accounting, and related office education; the distributive subjects; and the methods courses in business education.

The Committee that developed the NBEQ reports cautioned:

> When using the committee reports as an aid to curriculum or course of study construction, business educators should keep in mind the preparation which future business teachers will need to bring about desirable changes in the curriculums of their schools to keep them in harmony with the economic, social, and educational developments. Among these developments are the catapulting uses of the electronic computer and other automated devices in factories, stores, and offices; the trend toward more diverse and less definitive duties of office and store employees; the increasing vocational and personal needs for general education, economic education, and technical education; the need for a higher level of business and personal ethics; and instructional innovations such as programed courses, team teaching, and electronic classrooms.

Whiting and Yetka (1963), through questionnaires and interviews of 104 administrators and 205 business teachers in Wyoming and

Colorado, collected opinion of beliefs and practices based on an authoritative statement by the Policies Commission for Business and Economic Education (1960), This We Believe About Business Education in the High School. The groups of business teachers interviewed expressed a need for additional training in curriculum planning, public relations, and guidance activities. That these teachers "did not know how to cope with low-ability students" is of current relevancy providing foundation for interdisciplinary designs for controlled evaluation of teacher practices and their effectiveness in the numerous local, state, and federal programs currently pointed toward the "disadvantaged." Substantive research in other educational areas could, of course, supplement the absence of specific knowledges and applications in this field.

In a different approach to the problem of qualifications of business teachers, Sears (1959) formulated an evaluative check list based on the responses to questionnaires sent to administrators of public secondary schools in the State of California, employed business teachers, and directors of placement bureaus affiliated with teacher education institutions; on suggestions from the literature; and on results from the use of a jury of authorities. The instrument developed is to be used as a device to appraise qualifications presented by a candidate for a business teacher position. It refers to six factors related to business teacher preparation and qualifications: reference letter factors, interview factors, professional preparation factors, experience factors, professional preparation factors, experience factors, activities record factors, and other administrative appraisal factors.

And in a still different approach, Weston (1961) employed the critical-incidents technique to determine the critical requirements of the typewriting teacher. His study included the collection of 294 incidents from which he was able to derive 26 critical requirements. Because of the similarity of his final list of requirements to others (e.g., Kessel, 1957, and Farra, 1962) about business teachers, Weston concluded that similar studies in other single business education skill subjects would not be productive. He did, however, suggest using the critical-incident technique for determining critical requirements for teachers of skill subjects in general or for teachers of nonskill subjects.

Davis (1963) commented that our interest in research related to business teacher preparation should take two directions: doing research and using it. He further pointed out that while our research efforts to date have been comparatively puny, one of the marks of a great profession is a willingness to devote a considerable portion of time and money to research and to promote on the part of the professional practitioner a positive orientation toward doing and using research. Both doing research and using it should probably be a part of the preparation of all business and office teachers.

Research With Implications for Programs for Beginning Teachers

Gress (1952), in a survey of 271 graduates of 153 teacher-training institutions, reported on the eight major areas of teaching difficulties of beginning business teachers: testing and grading, discipline, teaching subject matter, classroom organization and management, student activities, personal considerations, teaching aids and techniques, and administrative difficulties. Polson (1960) surveyed 112 recent business education graduates and reported similar difficulties of beginning teachers as one of his findings.

Bonner (1964), University of Southern Mississippi, and Green (1964), Arkansas, reported on the effectiveness of teacher education programs of local institutions of teacher education. Bonner identified 17 problem categories and the extent and nature of weaknesses associated with each. Green found that (1) the general education subjects most frequently considered important to teaching effectiveness were psychology and English; (2) the general education subject considered most useful was public speaking; and (3) the most important business subjects in the teaching field of business graduates were considered to be shorthand, accounting, and typewriting.

Bateman (1963) reported on the development of an evaluative instrument in an exploratory attempt at measurement of understandings of the professional elements of business teaching. One finding in particular merits further study: "There is a need for a kind of evaluation that extends beyond measurement of facts and knowledge relationships which people possess." The exploration of the noncognitive areas of teacher preparation and activity is untouched in business education research.

The development by Krathwohl, Bloom et al. (1956) of a research tool of classification in the affective (and cognitive) domain makes the application of such a taxonomy to business teacher preparation a fruitful area of investigation.

Research With Implications for Student Teaching

One critical area of business teacher education which has received considerable attention from researchers is student teaching.

A National Association for Business Teacher Education Bulletin (1961) dealt in some detail with desirable experiences of business student teachers. A panel of Liguori, Gibbons, and Adams identified six principles for business student teaching:

(1) Consideration should be given to a long-term plan for the provision of preteaching experiences.
(2) Prospective business teachers should meet some qualitative criteria and undergo some screening procedures.
(3) The supervising teacher is the key to a successful program of student teaching.
(4) The practice of placing student teachers depends upon the locale.
(5) The role of the university or college coordinator lies in the realm of public relations.
(6) The five-year program is under consideration in a number of states.

Prickett (1959), through analysis and interpretation of available literature, also sought basic principles of student teaching and designed an instrument, "Criteria for Evaluation of Student Teaching in Business Education."

Ebert (1961) established from a survey of research a variety of roles assigned to student teachers of business subjects in six areas of curriculum, guidance, instruction, extraclass activities, liaison, and professionalism. Each of the major roles involves many minor aspects of competence which she defined, described in detail, and carefully authenticated.

National Business Education Quarterly (Winter, 1963-64) reported on a comprehensive attempt to classify, analyze, and interpret a check list on student teaching and other laboratory experiences. The purpose was to determine the degree of essentiality of competencies that should be developed through student teaching and other professional laboratory school experiences. The method involved collection of authoritative opinion from teacher educators. Rated essential by 75 per cent or more of 154 respondents (55 per cent of NABTE member schools) were: understanding and skill necessary for effective human relations, appropriate personal qualities, ability to plan effective learning experiences, skill necessary to evaluate classroom procedures, understanding and skill necessary to guide students through learning experiences, and skill necessary for effective classroom management. A list of suggested activities to develop these competencies is also included in the report. NABTE Bulletin 82 (1965) is an extension of the above report on current developments in student teaching.

Stanford University's experimentation in micro-teaching has not been reported as used in business student teacher preparation. Micro-teaching is a promising technique developed as "a scaled-down teaching encounter . . . to serve two purposes: (1) as preliminary experience and practice in teaching and (2) as a research vehicle to explore training effects under controlled conditions" (Bush and Allen, 1964; Allen and Fortune, 1965).

The recency of reporting and the ongoing nature of the experimentation has not as yet caused micro-teaching, except on an extremely limited basis, to be adapted to or used in business and office education. With pilot study now going on in business teacher preparation, one would expect a variety of research utilizing adaptations of micro-teaching concepts and design to be reported soon in business teacher education as in all fields.

Supervising Teachers

The supervising teacher, as well as the student teacher, has been singled out for special attention in research.

Gibbons (1960) studied the factors that influence the excellence of superior supervising teachers in business education and concluded that:

> The superior supervising teacher's outlook on student teaching was the key characteristic of the general personal and professional characteristics which differentiated the two groups . . . the superior supervising teachers were more active in terms of teaching activities and professional extraclass activities than were the typical teachers.

Six distinguishing operating methods of supervising teachers were found. From these, she developed "a professional image" of a superior supervising teacher in business education.

Hoskinson (1962) investigated the in-service needs of business education supervising teachers in the Indiana State Teachers College program. His report dealt with phases of supervisor activities in three categories: those needing much, some, or little improvement. Much improvement was needed in a supervising teacher's working as an integral part of the teacher education program, in becoming acquainted with the student teacher and planning his program, in guiding his professional and personal growth activities, and in helping him prepare for his first job.

Cooper (1962) studied differences in attitudes toward classroom activities held by methods, by supervising, and by student teachers. He found that student teachers tend to be influenced more by their supervising teacher than by their methods teacher. They adjust satisfactorily, however, to what could sometimes be an uncomfortable situation because of these differences.

Perry (1964) employed the critical-incident technique to identify the critical requirements for supervising business teachers. Critical incidents were analyzed and classified according to major areas of job responsibility as follows: orientation, observation, preparation, classroom teaching experiences, classroom management, extraclass activities, evaluation, and personal and professional relationships. In addition, he listed six observations about effective supervising teacher behavior as involved with student teachers.

Harven (1964) reported on The Supervising Teacher: A Synthesis of Research Findings and Thought. Abstracts were prepared for 216 research reports and notes were taken on 211 professional articles prior to 1962. Findings included the work of the supervising teacher as a three-fold task involving preparing for the arrival of the student teacher, inducting the student teacher into responsible teaching, and developing within the student the ability to impart and evaluate instruction.

Research With Implications for Graduate Education

Continuing research on graduate programs first reported in 1960 (reported herein under Research), Hammer (1966) made recommendations concerning the Ph.D. and Ed.D. programs as follows:

(1) The Ph.D. degree should continue to serve the purpose it has historically, to prepare highly specialized and competent research workers.
(2) The Ed.D. degree should serve as a preparation for master college teachers and other educational workers whose primary duties do not involve research competencies.
(3) The dissertation research requirement in the Ed.D. program should be eliminated.

> (4) As a condition of receiving the Ed.D. degree, the candidate should demonstrate his teaching competencies at some cooperating college through a two-year internship under the supervision and guidance of his doctoral committee.

Rahmlow (1965) investigated the statistical computing needs of graduate students in education and developed a technique for introducing computer usage to graduate students by inserting a unit of work in the advanced statistics course with satisfactory results.

Both of these investigators, of course, uncovered needed and significant information. Both used their studies in attempts to improve the quality of graduate business and office teacher preparation programs. Further research is needed to identify desirable patterns of graduate business and office teacher preparation more closely related to his professional role as a teacher.

Summary

Teacher education research has been concerned with classifications and descriptions of qualifications and requirements for teachers of business and office education. These attempts have utilized mainly the survey and questionnaire technique. While helpful in telling us where we are, they are of little value in telling us where we ought to be. The use of Flanagan's (1950) critical-incident technique by Weston and others is one improved approach to determining teacher qualifications and requirements. Sound instruments to evaluate further preparation and performance are needed.

Questionnaire and similar survey techniques characterize a primary method used to examine the role of the student and supervising teacher. Innovative research designs and demonstrations, like micro-teaching, are needed.

ADMINISTRATION AND SUPERVISION

Status of Research

Significant studies dealing specifically with questions of administration and/or supervision of business education have not appeared in recent literature. The published aids to the business educator are mainly three in nature: (1) yearbooks issued by the major associations in the field (Eastern Business Teachers Association and National Business Teachers Association) and periodicals concentrating on business education; (2) many new and excellent textbooks on school administration, defining and elaborating on the principles of administration, all of which apply to business education, and one (Hansen and Liles, 1964) dealing specifically with business education: and (3) compilations of activities and responsibilities of business leaders at the several levels. The 1966 EBTA yearbook, for instance, discusses functions of the state consultant (Kozelka), the city supervisor (Clippinger), and the department chairman (Kalb).

The position of administrator, in fact, is not research-oriented. The holder is in a decision-demanding situation. He is in many situations where it is more important that a decision be prompt and firm than that it be the best possible decision with no time to research for better answers. Some graduate schools recognize this characteristic of administration in their exploration of a nonresearch doctorate for superintendents and principals. Decisions are made on the basis of the administrator's background experience, his best informed judgment, and, when time allows, exchange of thinking with respected sources in conferences or through published pertinent discussion.

Scope

Some problems do not require immediate decisions but they invite research for long-term planning or because they are recurring situations. Such problems are common to leaders of the other fields as well as business education falling in such areas as budget, staff, physical facilities, curriculum, pupil personnel, organization, community relations, and evaluation. There are investigations reported dealing with questions within these subfields. For instance, one year's issues of microfilm abstracts summarized eight dissertations dealing with merit rating of teachers. In this report, such studies, if specifically related to business education, were discussed in the appropriate section, i.e., objectives, curriculum, learning processes, or others.

Since the business administrator is faced with the problems common to administrators, paucity of impressive accumulations of research findings in his special field is compensated for by the easily available literature in the periodicals for educational administrators with information about administrative responsibilities, their interpretation and guides to professional behavior. Koenig (1966) summarized concepts, which hold at all levels. They hold also in all fields: (1) that broad spans of control between superior and subordinate relationships should be evident; there is some evidence to support the contention that a superior should not be responsible for more than five or six subordinates if his efforts are to be efficient and effective; (2) that a flat organization, one in which authority levels are kept at a minimum, individual units are given considerable autonomy, responsibilities are distributed among many persons, and specialists serve teachers is to be preferred; (3) that the building unit be considered as the primary unit in the organization and its internal sub-units be organized to relate to its functional needs; (4) that specialists be staff officers to whom teachers and others can turn for advice and counsel rather than direction and command; (5) that the organization be decentralized to assure that both the number and importance of decisions are affected by persons closer to the operational level; and (6) that institutional purpose be the primary criterion for organization and that individuals be employed and assigned roles in the organization on the basis of its needs rather than on the basis of individual personalities.

EVALUATION

This discussion will deal with investigations to evaluate business education programs, teaching staff, and classroom instruction. Studies purporting to evaluate other aspects of business education have been commented on earlier, each in connection with its related phase.

The term evaluation has been lightly incorporated into the title by investigators frequently as a loose synonym for measurement, inventory, or classification, or perhaps as a word to dignify the study: evidence of evaluation is, more often than not, too incidental and scanty to justify the use of the term in the description. One study, as an example, undertook "to describe, analyze, and evaluate business education in the State of Washington: objectives, organization and administration, subject offerings and curriculum, plant, equipment, materials, methods, standards, personnel services, problems and achievements" (Wilsing, 1959). Even with a measuring stick of established reliability and validity, the most one could attribute to such a procedure is measurement.

Evaluation must involve the use of value judgments--judgments based upon an accumulation of data of various kinds, related to predetermined goals and standards. Evaluation is the process of making judgments and coming to decisions about the value of an experience. The process, according to Schwartz and Tiedeman (1957), "consists of two elements: (1) a goal or objective for the experience to be evaluated must be set and (2) some measure of amount, status, or progress must be made. An evaluation of the experience then involves a carefully considered judgment as to the adequacy or effectiveness of the experience as measured in the light of the objectives set for it." Measurement never gives more than an answer to the question, "How much?" Evaluation, on the other hand, seeks an answer to the question, "Of what value" is the measure (amount) when compared with the instructional or operational objectives. It should be remembered always that the basic purpose of evaluation in education, whatever the specific forms or tools may be, is to determine the nature and extent of changed behavior in students.

Programs

A multitude of signs make it apparent that officials and teachers are asking themselves, "How well do present programs reflect the changes that are pushing yesterday's skills on to the closet shelves to rust away with yesterday's equipment?" On the basis of a survey reaching 402 secondary schools in 50 states, Wanous (1964) stipulated several basic planks for an evaluation platform. Among them were these: (1) there must be a variety of offerings serving a wide range of learners, whose differences in background, learning rate, learning purpose, and physical development must be accommodated by the program; (2) suitable aims for each element of the program should be defined, understood, and appreciated by teachers, counselors, and parents, as well as by the teacher and the students involved in each; (3) aims and procedures should be under constant study; and (4) results must be examined in terms of both the specific and the basic aims of the program.

The changes occurring have affected teaching procedures, curriculum content and structure, teacher utilization across-the-board in the secondary school, and equally in the community college. Following the appearance of Focus on Change, Trump (1961), experimental programs and innovations were introduced nation-wide. The writer visited pilot programs in Florida, Arizona, Colorado, California, Illinois, and Michigan. The atmosphere in these schools was exciting but two negative observations were made: the perception of these participating in the innovation were expressed in terms of "what we are doing" or "how we are going about this," and in no case to "how the student will be different and how we expect to identify the differences." The second significant observation was that in many of the schools, the innovative practice or experiment was not participated in by the business department. There still are schools where the business instruction is not in the main stream of education but a sort of private business college attachment at public expense.

The logical test of a program is a follow-up of graduates and other leavers and as would be expected a mass of reports exists; long, short; continuous, intermittent and once-only; master's level, doctoral and independent. Valuable as such a study can be, the findings tend to be pertinent to the school making the study, except as the design be drawn with a view to more general significance.

The evaluative criteria of the regional accrediting associations have sparked attempts to devise similar instruments for business education. Wyllie (1961) developed an evaluation plan for secondary school programs but reliability testing was limited to a gesture (try-out by 20 teachers), the finding being that "the teachers believed" that the instrument had helped to improve the department.

Staff

Evaluation of personnel in education is an unlighted area at all levels and occupational niches. Administrators and public alike deplore the velvet rut in which even the incompetent and uninspiring teachers can rest comfortably until retirement age rolls them out. Toffler (1966), in a discussion of what parents can do about "bad" teachers, presented fairly the importance for education of some effective rating method. Teachers are "evaluated," in fact, though the process results in grading too coarse and unreliable to be justified.

Business has had to devise practices by which to appraise employees in spite of the fact that there, too, evaluation of human performance and potential is not easy. Yet the fact that good results do occur has been reasonably well established by personnel departments (Place, 1960). Rating is affected by the training, experience, and understanding of rating programs and techniques which the supervisor has. Unfortunately, most school administrators do not possess these technical requisites nor have their observations--brief, accidental, shallow--provided enough data for a fair and discriminating judgment.

Place discusses also the use by business personnel officials of a "significant incident" method of evaluating employees, a variation of the anecdotal record. A significant behavior incident is recorded on a two-tone sheet, one-half tinted a light shade of pink and the other a faint green. If favorable, the incident is recorded on the green half; if not commendable, it is recorded on the pink half. The incident then becomes the occasion for and the basis of a conference with the employee--for this purpose green area data being fully as important as the pink area records. Merits of the plan in the experience of one company using it are that (1) discussions are of things which an employee actually did; (2) they are discussed at a time when they are well remembered; (3) dependence upon memory and emotion is reduced to a minimum; and (4) both the good and the bad are equally discussed. There is reason to think that staff morale would benefit significantly in a school willing to adopt it.

Instruction

Evaluation of instruction is recognized to involve identification of changes in the behavior of students. Much effort has gone into refinement of measuring instruments only to have nice discrimination dissipated by conversion into an unrefined grade report. An evaluation of "C" tells parent or student nothing meaningful, no matter how much study and nicety of observation went into the determination of it.

Evidence from studies dealing with evaluation of teachers, critic teachers, and student teachers compels the conclusion that more attention is fastened on what the instructor is doing than on why and on how the "why" is to be measured; on how the teacher teaches rather than on how the learner learns and what the learner learns (Gratz, 1966). Strang (1960) discussed the cultivation of techniques for detecting and encouraging qualitative gains in behavior by students and made the point that habitual relating of such gains to the basic objectives of education develops evaluative instinct, skill, and an understanding of pupils as persons that makes working with them exciting. She referred to such techniques as controlled observation, informal chats with students, unstructured compositions, the use of hypothetical problems or situations, and others.

Materials and Instruments

The many studies concerned with the evaluation of materials, facilities, and other phases of business education relate to specifics and are discussed in the appropriate section of this report. Mention will be made, however, of some dealing with special research interest. Gephart (1965) developed an instrument for evaluating reports of educational research, which applied to 20 randomly selected reports (after a pilot application to another 20 reports) and let him to two conclusions: the documentation of significant differences between research reports in a specific area demands continued systematic research on research; and studies must be systematically evaluated as they are presented to the consumer to avoid the erroneous acceptance of research produced "facts." Instruments were devised by Higgins

(1962) to evaluate adequacy of knowledge of the fundamentals of business and by Erickson and Oliverio (1964) to establish criteria for evaluating survey instruments.

Such tests as the National Business Entrance tests and the examination for certified professional secretaries have potential significance which calls for validation. Studies were made by Natale (1963) of the stenographic and typewriting tests of the National Business Entrance Tests and of the Certified Professional Secretary's examination by Zaugg (1961).

Summary

Business education programs and instruction are now evaluated largely in terms of imposed criteria, contrived or borrowed check lists, opinionnaires, class grades, and, in some particulars, objectively measured achievement. But there are clues to the direction that evaluation now can and should move to serve the need for upgraded office positions. Appraisal of staff and appraisal of student learning both call for development of skill in evaluating qualitative behavior; the acquisition of expertness in the use of nonformal appraisal devices; and for self-evaluation techniques by teachers and by pupils. The hope, then, is that the graduate will enter employment with standards of work and confidence in his workmanship based on awareness of the merits of his performance.

The foot-in-the-door test of the business program is no longer sufficient evidence of the merits of the program. Much needed is continuous year-by-year follow-up of leavers and longitudinal case studies that tell in full depth the story of program adequacies and weaknesses.

RESEARCH

Status of Research

Research in business and office education is a development of the last three or four decades. Previous to that time, the few colleges offering instruction in business education perceived their function to be the training of business teachers for secondary schools, for positions as department heads and supervisors. Research competence and activity was not thought of as a special or high priority objective of students. Any notable research related to business education at that early stage was contributed by researchers in other fields, principally psychologists, who saw in typewriting, for instance, possibilities for investigations into the growth of skill. Bryan and Harter (1899) studied the acquisition of telegraphy skills, which at that time were accented in the private business colleges. They established that a skill does not continue to grow on the job merely from occupational use. The "branch line" level remained at branch line level unless motivation and continued effort were applied to raise the competence to "main line" requirements. Psychologists Book (1925) and Dvorak (1936) made landmark studies on which students of typewriting skill have built. Speculation about the influence of the typewriter as a learning tool led Wood and Freeman (1932) to a two-year experiment in which typewriters were made accessible as a writing tool for pupils at all grade levels in the elementary schools. In the early forties, also, Fuller (1945) published his study about reading factors in learning to type. These studies stimulated teachers to experiment and observe, to supplement, extend and refine skill-building procedures. In this way our present body of research literature has developed.

During the last 40 years, colleges offering instruction in business have increased to 295, according to the roster of the National Association for Business Teacher Education; and from programs meeting minimum requirements for teacher certification, service has expanded to include research activity at the master degree level for most and the doctoral level for scores of institutions. Research studies in business education have increased from an early annual appearance of only an incidental report to a present annual output of more than 200. A recent annual summary (National Business Education Quarterly, 1960) listed for the one-year period 169 masters' theses completed, three investigations for the education specialists degree, three independent studies, and 26 doctoral dissertations. Another recent issue of the same publication listed for the year 1961 a total of 123 masters' theses completed, 46 doctoral dissertations, and two independent studies.

Increase in volume, however, is not necessarily good. The number of doctoral studies implies a corresponding number of business educators with research training and experience embodied in their educational preparation. However, they have not continued their research activity beyond graduation to produce the studies of depth and significance one would anticipate. The budding research interest could not compete for time and energies with teaching responsibilities, the demands of administrative activities, or the lure of publishing textbooks and other instructional materials. The mounting research has been almost exclusively produced by graduate students, motivated by degree requirements. This novice level research is admittedly and understandably faulty because of the limitations of time and funds under which a graduate student must operate as well as his yet undeveloped expertness in research design and data handling.

Evidence is needed that the doctoral research experience is justified as the universal element in a leadership training program that it is now assumed to be. One line of evidence seems logical: the quality of research proposals submitted to the United States Office of Education for funding. Smith (1964) inventoried the inadequacies found in a selected sample of 100 research proposals drawn from a population of 675 proposals submitted to the Cooperative Research Program of the U.S.O.E. during the fiscal years 1958-60. A jury of three experienced researchers agreed on the following findings: insignificant problems, 66 per cent; theoretical orientation absent or inadequate, 87 per cent; inadequate knowledge of the related research literature, 45 per cent; superficial research goals present in high percentages; design inappropriate in 48 per cent. Among the conclusions which Smith takes to be justified from this study are: (1) the state of educational research is at a relatively low level of sophistication: (2) much of educational research is focused on relatively simple, straight-forward "surface" problems with little in the way of theory to guide its conduct; and (3) educational researchers appear to be making little use of past research.

Another line of evidence available is the perception of the value of the research experience by those who have participated: the student researchers and the faculty sponsors. Hammer (1960) sought to determine the value of the research degree experience in the opinion of holders of the Doctor of Education degree and the values research directors expected candidates would get from the experience.

Data were obtained by questionnaire from 124 degree holders (return of 83 per cent) and from 16 colleges (80 per cent return). The judgment of the college research supervisors was that the experience did not result in the extent expected in insight into scientific thinking and methods, competence in the use of statistics, and skill in the use of interview techniques. Attitudes of objectivity and thoroughness did not significantly carry over into classroom teaching. One can infer that the learnings from the research experience were not thorough enough to carry over adequately into further research.

The principles of research in business education are the same as those adequately treated in the research literature of related fields: psychology, sociology, economics, and others. There have recently appeared, however, reports and discussions in which research techniques are oriented to business education. Lomax and Wilson (1962) treated comprehensively the improvement of research in business education; West (1962) presented a score card with bases for evaluating research; West (1963) and Mandel (1965) discussed critical aspects of statistical sampling.

The review of research in various interest areas in business has been facilitated by a cluster of studies each of which has inventoried the significant research in an important area, analyzing and classifying the findings and relating them to the philosophy or principles of that area. Reports are available on research in the following areas:

Rahe (1952 and 1963). Bibliography of Research Studies in Typewriting.

Rahe (1959 and 1963). Bibliography of Research Studies in Stenographic-Secretarial Training and Work Reported Prior to 1959.

Frink (1961). Research and Thought Pertaining to Shorthand and Typewriting, 1946-57.

Miller (1961). Thought Pertaining to Office Practice Instruction.

Prewitt (1961). Research Findings and Thought in the Area of Office Practice Instruction, 1951-1959.

Devine (1962). Research Findings and Thought on the Teaching of Bookkeeping and Accounting, 1950-1960.

Moriwaki (1962). Research Findings and Thought on Guidance in Business Education.

Green (1964). The Teaching of Economics: Research Findings and Thought.

Similar studies have recently been made, each analyzing the research and thought on one of the levels of business education:

Maze (1962). The Role of Business Education in the Junior High School.

Goddard (1962). The Potential Role of the Junior College in Education for Business.

Green (1964). A Study of the Thought Underlying Graduate Business Education.

Research Techniques

Studies using varied and imaginative techniques are few in the literature of the field of business education. Those using questionnaires and interviews naturally dominate the research reports, lending themselves readily as they do to hurried collection of much data whose inadequacies escape notice except under closer scrutiny than most readers can or will bring to bear. Normative surveys, when conducted with expertness, are indispensable as a research tool but as our researchers through experience acquire ingenuity in selecting and devising other appropriate techniques, more information will be available to give us keener insight into the process of helping youth grow into businessmen and women. Normative surveys tend to develop a picture of the status quo; directing attention to the norm, they trim out of the picture the extremes, the unusual, and the evidences of the more imaginative and bold thinking.

Frontier exploration does not necessarily involve new techniques. Case study procedure permits analysis of the ahead-of-his-time person or the out-in-front practice, concept, or movement. Since Flanagan (1950) publicized the critical-incidents technique, it has been used to identify what the outcomes of various training programs should be. Kessel (1957) on the basis of critical incidents analyzed the performance of business teachers. Kozy (1959) defined the training requirements for private secretaries on the basis of behavior in critical situations. The most logical and reliable of available techniques, experimentation, has been conspicuously by-passed by contributors to the store of research literature in business education. The field is waiting for much needed experimental studies, imaginatively conceived and designed with ingenuity to test the many assumptions we have comfortably lived with.

Galloping change makes the need for research critical. The curriculum, responding as it should to occupational changes, must move: from obsolescing skills to new skills; from manual skills to mental skills; from focus on skills to development of understandings. The adjustment by teachers to new targets, new materials, and new procedures will involve new measurement techniques and understandings, to mention just one challenge. Simple devices are not available to measure some gains of rising priority, say effectiveness in creative and productive thinking. Hutchinson (1963) captured class activities for whole periods on tape, which then permitted analysis of such categories as: routine learning behavior, communication skills, cognitive (memory) behavior, convergent thinking, divergent thinking, and general evaluation.

There is no more urgent need for research, or greater opportunity in research, than in the field of measurement. No scientific field has made strides beyond the limits set by its perception of what to measure and its ingenuity in contriving how to measure.

Research Instruments

The researcher is fortunate who is able to find an instrument of established reliability appropriate for his purpose. In most of the studies reviewed the construction of the instrument was one of the steps in the procedure: questionnaire, interview, follow-up survey, evaluative check list, and the like. In some of the studies, the construction of the instrument developed into the principal objective of the project. Gephart (1965) found in the professional literature seven instruments for rating research, two check lists, and three articles presenting evaluative criteria. Evaluative criteria for survey instruments are presented by Erickson and Oliverio (1964) and an instrument for evaluating the business education program of the secondary school was developed by Wyllie (1961). The usefulness of such by-product instruments (tests, check lists, guides, rating instruments) would depend upon how appropriate they are to the specific purpose of an investigator and on their reliability, which he would have to establish in justifying their use.

Organizational Influence on Research

As early as 1955, the Committee to Coordinate and Integrate Research in Business Education, an ad hoc committee of Delta Pi Epsilon and the National Business Education Association, published needed research in the field (Trytten, 1955). Delta Pi Epsilon's Research Bulletin No. 1 (1960) was a later look at questions needing answers.

The National Association of Business Teacher Education, as reported herein under Teacher Education, has prepared authoritative opinion and status reports, with data collected from respondents variously in member schools, related to aspects of teacher education. Dissemination of research literature has been an output of Delta Pi Epsilon and the Research Foundation of NBEA.

A technique worth future consideration, inaugurated by Oliverio and Anderson during their tenure in the Research Foundation, was that of developing a research network with a competent researcher in each of the states committed to state-wide data collection following a nationally-designed study.

The potential of such a network would be enhanced through a revival of a roster of faculty research manpower developed by Trytten as chairman of CCIRBE. Or, as suggested by Huffman and others, an "Academy of Research in Business Education" could be a vehicle for implementation of such a network. Similarly, the funding of centers responsible for cooperative research ventures, such as The Center for Research and Leadership Development in Vocational and Technical Education, is a coordinating unit for various combinations of cooperative research relationships.

Currently, the American Vocational Association has held research training conferences, funded by USOE, to upgrade competence of teacher educators and state supervisors in business education research methodology. Gratz at Shippensburg State College (Pennsylvania) held a recent conference to develop guidelines for research in business education. Price with Pi Chapter of Delta Pi Epsilon is testing, on a pilot basis, a research format for collecting data nationally on the status of business education.

The 1965 research design conference of Delta Pi Epsilon (Cook, 1965) laid the foundation for two USOE funded projects now in process: _Curricular Implications for Automated Data Processing for Educational Institutions_ (Bangs, F. Kendrick, University of Colorado, Boulder) and _Factors Associated With Successful Adaptation to the Secretarial-Stenographic Role_ (Cook, Fred S., Wayne State University, Detroit). Sponsored through seed money from DPE and South-Western Publishing Company, plans are for continuing and expanding the 1967 design conference in collaboration with the Research Foundation.

Summary

The future for research in business education is most encouraging. Federal recognition of the importance of research in education and the provisions for investing money in research have been extended to include all areas of education. The field is now ready to take advantage of the corps of educators, free to direct their efforts according to priorities of interest and importance, with such release from other responsibilities as the nature and importance of the investigation demands. We can expect an increasing number of post-doctoral studies, whose scope can be determined by the nature of the problem and whose design and technical handling can be as scientific as the combined expertness of the investigator and available consultant specialists can contrive.

The future is not a distant one. Such studies are even now getting off the ground. Information from the Office of Education is at hand to the effect that 18 research proposals have been recommended for funding. One of these has been completed: Cooperative Research Project No. 2378 (Cook and Lanham, 1966). Opportunities and Requirements for Initial Employment of School Leavers With Emphasis on Office and Retail Jobs. Project No. 5-0144, Bangs and Hillestad, is in process, a report on which is expected to be released soon. Others in process are: No. 5,8434, West; No. 5-0048, Haines; No. 5-1214, McGregor. Several proposals have been approved for summer workshops for purposes such as converting office practice teachers to trainers for electronic data processing occupations; clinics for office business education teachers; development of special programs; evaluation and surveys of new programs.

The "new look" for business education is encouraging. An evident quickening of interest in research has resulted from the higher lifting of the gates of the sluices flowing a stream of funds that will permit the power wheels not only to revolve faster but to do things that could not be done at all with the dribble heretofore trickling down. Long vexing problems need not longer loom up as phenomena to be deplored, rationalized, speculated about, or ignored; but indeed they may now be viewed as challenges whose solutions are limited only by the strength of purpose, the persistence of interest, and the informed competence which the investigator brings to bear on the problem.

CONCLUSIONS AND RECOMMENDATIONS

Business and office education research reflects a past and present quality of productivity which is not as reliable and useful as it could or should be. Looking to the future, business and office education research has not been as good as it will be. Our major conclusion, therefore, is self-deprecation of the past and present but a recommendation and a hope for the future.

Self-deprecation of research from within an area is dangerous because of possible misunderstandings both from within and without. Those from within the field may charge hypercritical treatment of some studies which distort our own self-image of worth to an outside world. Those from without, on the other hand, may seek comfort in rationalizing research faults in their own field. Neither reaction is sensible or justified.

To those within the area of business and office education, self-deprecation is a sign of maturity--a maturity unafraid to recognize faults which can be used to improve the future. And it is the belief of the writers that improvement in our research can come only through a "ruthless criticism of technique, findings, and conclusions that discoveries are subjected to in other fields (Trytten and Lanham, 1966)."

But let not those from without cast stones. The faults we reflect in research of business and office education are faults common to educational research in general--and, we dare add, some of the disciplines from which educational research is derived.

(1) Studies tend to be vulnerable because of overuse of the survey-type of research with inadequate evaluation of facts and findings.

(2) The studies have frequently been restricted to small, heterogeneous, or unrepresentative samples with limited general significance.

(3) There are too few carefully controlled experiments.

(4) Too often there is failure to evaluate and apply promising experiments for the improvement of education.

(5) Statistical design and analysis in many researchers are naive. (AACTE, 1954)

Our recommendations, growing out of the current review, are these:

1. A changed and changing business world demands answers to changed and changing instructional problems. We recommend, on the one hand, the continued infusion of research funds, sometimes massive funds, sufficient to provide dependable answers; on the other hand, we recommend masses of informal innovative classroom applications of research.

2. We recommend that masses of informal classroom research be organized to produce a massive and dependable result. As in medical science, while the case study of one practitioner does not provide dependable knowledge, organized observation, collection, and synthesis of case studies can.

3. We recommend a growing critical dialogue about research, an evaluation and selection of research methodology and findings. For researcher and practitioner alike, such a dialogue can help business and office educators to begin "to know how they know what they know."

4. We recommend renewed efforts for total dissemination of (at times synthesized) research findings. The organization of ERIC

clearinghouses is but a first step. For all studies in the public domain, the lag between completion and availability of reports should be cut from months or years to weeks. The infusion of federal funds to do research is wasted until findings can be made available and used. (In the current review the team was frequently handicapped in obtaining "hard" copy of research completed even two or three years ago.)

5. We recommend the continued stimulation and upgrading of research competencies, first among teacher educators and second among their graduate students. Developing graduate students with majors in research design is a high priority need for the future of research in business and office education. For the current teacher educators, we support the continuance and expansion of research clinics such as those sponsored through the American Vocational Association and funded federally; and those sponsored by Delta Pi Epsilon and The Center for Vocational and Technical Education.

6. In research clinics for upgrading competencies of present educators, we urge expanded use of consultants of experience and imagination who have demonstrated expertness in design and ingenuity in the use of research techniques.

7. We urge an increased interdisciplinary effort in stimulating research in business and office education, in conducting, in synthesizing, and applying interdisciplinary research findings.

8. We commend The Center for Vocational and Technical Education for this first step in review and synthesis. We recommend the continuation of the series. We believe also that business and office education can profit as much from similar reviews from all other ERIC clearinghouses as they can and will profit from the present series.

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